

SEQUENCE LISTING

<110> SUBTIL-SANDS, AGATHE
DAUTRY-VARSAT, ALICE

<120> SECRETED CHLAMYDIA POLYPEPTIDES, POLYNUCLEOTIDES CODING THEREFOR,
THERAPEUTIC AND DIAGNOSTIC USES THEREOF

<130> 249179US0

<150> US 60/448,879

<151> 2003-02-24

<160> 378

<170> PatentIn version 3.1

<210> 1

<211> 1203

<212> DNA

<213> Chlamydia pneumoniae

<400> 1

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actggagaaa ttaagggaaa ccacgtacgg atgcgtctag cacctcatac tgatgggacc	180
atcattaggg aattttctaa aggagatctt gttgctgtta tcggagaaag caaagactac	240
tacgtaattt ctgcgcctcc aggaattaca ggttatgtgt tccgctcatt tgtttttagat	300
aatgtcgttg aaggtgaaca agtcaatgtt cgtttagaac cctcaacatc agctccagta	360
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tggttagagg tggctcttgcc ctcaaatgc gtattctatg ttgcaaaaaa ctttgttgct	480
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gatctggaag caatttataa aaagatcaac cttgtacaat ccgaagagtt taaagatgtt	660
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gccagtatgc agcaaggcaa tgaccactct gaagcactaa cacaagaagc gttttatcgc	960

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taa 1203

<210> 2
<211> 310
<212> PRT
<213> Chlamydia pneumoniae

<400> 2

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Ile Asn Ser Pro Ala Ile Tyr Ala Ala Asp Ser Gln Ser Val Ser Phe
20 25 30

Pro Val Leu Leu Gly Leu Gly Gln Asp Lys Phe Leu Lys Ala Thr Glu
35 40 45

Asp Glu Asp Val Leu Phe Glu Ser Gln Lys Ala Ile Asp Ala Trp Asn
50 55 60

Ala Leu Leu Thr Lys Ala Arg Asp Val Leu Gly Leu Gly Asp Ile Gly
65 70 75 80

Ala Ile Tyr Gln Thr Ile Glu Phe Leu Gly Ala Tyr Leu Ser Lys Val
85 90 95

Asn Arg Arg Ala Phe Cys Ile Ala Ser Glu Ile His Phe Leu Lys Thr
100 105 110

Ala Ile Arg Asp Leu Asn Ala Tyr Tyr Leu Leu Asp Phe Arg Trp Pro
115 120 125

Leu Cys Lys Ile Glu Glu Phe Val Asp Trp Gly Asn Asp Cys Val Glu
130 135 140

Ile Ala Lys Arg Lys Leu Cys Thr Phe Glu Lys Glu Thr Lys Glu Leu
 145 150 155 160

Asn Glu Ser Leu Leu Arg Glu Glu His Ala Met Glu Lys Cys Ser Ile
 165 170 175

Gln Asp Leu Gln Arg Lys Leu Ser Asp Ile Ile Ile Glu Leu His Asp
 180 185 190

Val Ser Leu Phe Cys Phe Ser Lys Thr Pro Ser Gln Glu Glu Tyr Gln
 195 200 205

Lys Asp Cys Leu Tyr Gln Ser Arg Leu Arg Tyr Leu Leu Leu Tyr
 210 215 220

Glu Tyr Thr Leu Leu Cys Lys Thr Ser Thr Asp Phe Gln Glu Gln Ala
 225 230 235 240

Arg Ala Lys Glu Glu Phe Ile Arg Glu Lys Phe Ser Leu Leu Glu Leu
 245 250 255

Glu Lys Gly Ile Lys Gln Thr Lys Glu Leu Glu Phe Ala Ile Ala Lys
 260 265 270

Ser Lys Leu Glu Arg Gly Cys Leu Val Met Arg Lys Tyr Glu Ala Ala
 275 280 285

Ala Lys His Ser Leu Asp Ser Met Phe Glu Glu Glu Thr Val Lys Ser
 290 295 300

Pro Arg Lys Asp Thr Glu
 305 310

<210> 3
 <211> 756
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 3
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60

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cacctctatg ccatgtatct cctcgcacaa ttcagagaaa gtcgcgcact ccctctcatc	240
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gatacatctt tcatcagcat ggaagatgtc gaaaatatta tccacgaaga aaccgtggaa	660
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<210> 4
 <211> 251
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 4

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Gly	Ile	Leu	Pro	Arg	Glu	Ala	Ile	Glu	Ala	Ala	Ile	Val	Lys	Gln	Met
			20					25					30		

Gln	Ile	Thr	Pro	Tyr	Leu	Leu	His	Ile	Leu	His	Asp	Ala	Thr	Gln	Arg
		35					40					45			

Val	Pro	Glu	Ile	Val	Asn	Asp	Gly	Ser	Tyr	Gln	Gly	His	Leu	Tyr	Ala
	50					55					60				

Met	Tyr	Leu	Leu	Ala	Gln	Phe	Arg	Glu	Ser	Arg	Ala	Leu	Pro	Leu	Ile
65					70					75					80

Ile Lys Leu Phe Ala Phe Glu Asp Asp Thr Pro His Ala Ile Ala Gly
85 90 95

Asp Val Leu Thr Glu Asp Leu Pro Arg Ile Leu Ala Ser Val Cys Asn
100 105 110

Asp Asp Ser Leu Ile Lys Glu Leu Ile Glu Thr Pro Lys Ile Asn Pro
115 120 125

Tyr Val Lys Ala Ala Ala Ile Ser Gly Leu Val Thr Leu Val Gly Ala
130 135 140

Gly Lys Ile Pro Arg Asp Lys Val Ile Arg Tyr Phe Ala Glu Leu Leu
145 150 155 160

Asn Tyr Arg Leu Glu Lys Gln Pro Ser Phe Ala Trp Asp Asn Leu Ile
165 170 175

Ala Gly Ile Cys Thr Leu Tyr Pro Gly Glu Leu Phe Tyr Pro Ile Ser
180 185 190

Lys Ala Phe Asp Gly Gly Leu Val Asp Thr Ser Phe Ile Ser Met Glu
195 200 205

Asp Val Glu Asn Ile Ile His Glu Glu Thr Val Glu Ser Cys Ile His
210 215 220

Thr Leu Cys Ser Ser Thr Glu Leu Ile Asn Asp Thr Leu Glu Glu Met
225 230 235 240

Glu Lys Trp Leu Glu Asp Phe Pro Ile Glu Pro
245 250

<210> 5
<211> 948
<212> DNA
<213> Chlamydia pneumoniae

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ctcgggctgg gccaggacaa atttttaaaag gctacggaag atgaagatgt gctttttgag	180
tctcaaaaag caatcgatgc gtggaatgct ttattgacaa aagccagaga tgtttttaggt	240
cttgggggaca taggtgctat ctatcagact atagaattct tgggtgccta tttatcaaaa	300
gtgaatcggg gggctttttg tattgcttcg gagatacatt ttctaaaaac agcaatccga	360
gatttgaatg catattacct gttagatttt agatggcctc tttgcaagat agaagagttt	420
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gaaaccaagg agctcaatga gagccttctt agagaggagc atgcatgga gaaatgctcg	540
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ctcgaaaagg gaataaaaca aactaaagag cttgagtttg caattgctaa aagtaagtta	840
gaacggggct gtttagttat gaggaagtat gaagctgccg ctaaacadag tttagattct	900
atgttcgaag aagaaactgt gaagtcgccg cggaaagaca cagaataa	948

<210> 6
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 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 6

Met	Leu	Val	Glu	Leu	Glu	Ala	Leu	Lys	Arg	Glu	Phe	Ala	His	Leu	Lys
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Asp	Gln	Lys	Pro	Thr	Ser	Asp	Gln	Glu	Ile	Thr	Ser	Leu	Tyr	Gln	Cys
			20					25					30		

Leu	Asp	His	Leu	Glu	Phe	Val	Leu	Leu	Gly	Leu	Gly	Gln	Asp	Lys	Phe
		35					40					45			

Leu	Lys	Ala	Thr	Glu	Asp	Glu	Asp	Val	Leu	Phe	Glu	Ser	Gln	Lys	Ala
	50					55					60				

Ile	Asp	Ala	Trp	Asn	Ala	Leu	Leu	Thr	Lys	Ala	Arg	Asp	Val	Leu	Gly	65	70	75	80
Leu	Gly	Asp	Ile	Gly	Ala	Ile	Tyr	Gln	Thr	Ile	Glu	Phe	Leu	Gly	Ala	85	90	95	
Tyr	Leu	Ser	Lys	Val	Asn	Arg	Arg	Ala	Phe	Cys	Ile	Ala	Ser	Glu	Ile	100	105	110	
His	Phe	Leu	Lys	Thr	Ala	Ile	Arg	Asp	Leu	Asn	Ala	Tyr	Tyr	Leu	Leu	115	120	125	
Asp	Phe	Arg	Trp	Pro	Leu	Cys	Lys	Ile	Glu	Glu	Phe	Val	Asp	Trp	Gly	130	135	140	
Asn	Asp	Cys	Val	Glu	Ile	Ala	Lys	Arg	Lys	Leu	Cys	Thr	Phe	Glu	Lys	145	150	155	160
Glu	Thr	Lys	Glu	Leu	Asn	Glu	Ser	Leu	Leu	Arg	Glu	Glu	His	Ala	Met	165	170	175	
Glu	Lys	Cys	Ser	Ile	Gln	Asp	Leu	Gln	Arg	Lys	Leu	Ser	Asp	Ile	Ile	180	185	190	
Ile	Glu	Leu	His	Asp	Val	Ser	Leu	Phe	Cys	Phe	Ser	Lys	Thr	Pro	Ser	195	200	205	
Gln	Glu	Glu	Tyr	Gln	Lys	Asp	Cys	Leu	Tyr	Gln	Ser	Arg	Leu	Arg	Tyr	210	215	220	
Leu	Leu	Leu	Leu	Tyr	Glu	Tyr	Thr	Leu	Leu	Cys	Lys	Thr	Ser	Thr	Asp	225	230	235	240
Phe	Gln	Glu	Gln	Ala	Arg	Ala	Lys	Glu	Glu	Phe	Ile	Arg	Glu	Lys	Phe	245	250	255	
Ser	Leu	Leu	Glu	Leu	Glu	Lys	Gly	Ile	Lys	Gln	Thr	Lys	Glu	Leu	Glu	260	265	270	

Phe Ala Ile Ala Lys Ser Lys Leu Glu Arg Gly Cys Leu Val Met Arg
 275 280 285

Lys Tyr Glu Ala Ala Ala Lys His Ser Leu Asp Ser Met Phe Glu Glu
 290 295 300

Glu Thr Val Lys Ser Pro Arg Lys Asp Thr Glu
 305 310 315

<210> 7
 <211> 648
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 7
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 actaaaggtg tgattgcgat gcttcctgta tttcatcgcc caggaaagag tcttgaacct 180
 ttaccttgga acctccaagg agaatttact gaagagatca gcaaaagggtt ttatgcttcg 240
 gaaaaggctt tcttgatcaa gcacaatgct tcacctcaga cagtctctca gttctatgct 300
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 tggaactcaa aacatthttga ttcaacgccc atgggcttaa tgcatagcgc tcttttccgc 600
 gaagttgttg ccagagttga gggctatggt tgtgctaact actcgtag 648

<210> 8
 <211> 173
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 8

Met Arg Lys Met Leu Val Leu Leu Ala Ser Leu Gly Leu Leu Ser Pro
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Thr Leu Ser Ser Cys Thr Ala Ile Thr Ser Ser Pro Gly Met Val Asn
 20 25 30
 Leu Leu Ile Gly Trp Ala Lys Thr Lys Phe Ile Gln Pro Ile Arg Glu
 35 40 45
 Ser Lys Leu Phe Gln Ser Arg Ala Cys Gln Ile Thr Leu Leu Val Leu
 50 55 60
 Gly Ile Leu Leu Val Val Ala Gly Leu Ala Cys Met Phe Ile Phe His
 65 70 75 80
 Ser Gln Leu Gly Ala Asn Ala Phe Trp Leu Ile Ile Pro Ala Ala Ile
 85 90 95
 Gly Leu Ile Lys Leu Leu Val Thr Ser Leu Cys Phe Asp Glu Ala Cys
 100 105 110
 Thr Ser Glu Lys Leu Met Val Phe Gln Lys Trp Ala Gly Val Leu Glu
 115 120 125
 Asp Gln Leu Asp Asp Gly Ile Leu Asn Asn Ser Asn Lys Ile Phe Gly
 130 135 140
 His Val Lys Thr Glu Gly Asn Thr Ser Arg Ala Thr Thr Pro Val Leu
 145 150 155 160
 Asn Asp Gly Arg Gly Thr Pro Val Leu Ser Pro Leu Val
 165 170

<210> 9

<211> 777

<212> DNA

<213> Chlamydia pneumoniae

<400> 9

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tctgcagttc aagggttttct tcaaactgga ggagctgcct cctctacagc gacaactact	180

accgcatccg gagcctctgc attaggactt tcacctgac aagtgcaagc gttgcttact 240
 aatttattaa atgtgggaca accatcagtg ggacaaccat caacttcagc aggaacttcg 300
 ggagcctcct cttccagtgc aagtatgcag caacagcttt tgcaacttat cttagacaag 360
 acaacaggaa gtggcggatc gtccgtgagt tcagagcaat tacagcaact ccttagcttg 420
 gtgagccaga tgactacgtc tcaaggagga agtggtggaa ctcaggcagg acaggccgct 480
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<210> 10
 <211> 258
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 10

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 1 5 10 15

Lys Phe Pro Ser Pro Gln Asn Pro Gln Val Val Thr Ile Ala Pro Ser
 20 25 30

Ser Thr Thr Pro Gln Ala Val Ser Ser Ala Val Gln Gly Phe Leu Gln
 35 40 45

Thr Gly Gly Ala Ala Ser Ser Thr Ala Thr Thr Thr Thr Ala Ser Gly
 50 55 60

Ala Ser Ala Leu Gly Leu Ser Pro Asp Gln Val Gln Ala Leu Leu Thr
 65 70 75 80

Asn Leu Leu Asn Val Gly Gln Pro Ser Val Gly Gln Pro Ser Thr Ser
 85 90 95

Ala Gly Thr Ser Gly Ala Ser Ser Ser Ser Ala Ser Met Gln Gln Gln
 100 105 110

Leu Leu Gln Leu Ile Leu Asp Lys Thr Thr Gly Ser Gly Gly Ser Ser
 115 120 125

Val Ser Ser Glu Gln Leu Gln Gln Leu Leu Ser Leu Val Ser Gln Met
 130 135 140

Thr Thr Ser Gln Gly Gly Ser Gly Gly Thr Gln Ala Gly Gln Ala Ala
 145 150 155 160

Ser Val Leu Leu Asn Leu Leu Ser Ala Thr Gly Ser Ala Ala Ala Asn
 165 170 175

Pro Leu Gly Thr Ala Ala Ser Leu Ala Gln Ile Ile Tyr Ala Ala Val
 180 185 190

Thr Ser Pro Gly Ala Lys Lys Thr Ser Glu Phe Cys Tyr Asn Tyr Cys
 195 200 205

Gly Glu Thr Cys Gln Gly Asn Cys Gly Cys Pro Thr Cys Gly Cys Pro
 210 215 220

Asp Gly Gln Cys Gly Cys Gly Gly Phe Gly Arg Phe Phe Cys Gly Val
 225 230 235 240

Trp Lys Asn Cys Cys Gly Ile Gly Glu Gly Ser Gln Glu Pro Ala Ile
 245 250 255

Pro Leu

<210> 11
 <211> 1254
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 11
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tttattacta	ttcctgataa	atatacctaaa	atgcgctatg	tctatgacac	aggcattatt	180
gcccttgcg	caattgcat	cctttcgatt	ctcctgactg	cttcaggaaa	cagccttatg	240
ctttatgctc	tcgctccggc	acttgccctg	ggagctttgg	gagttactct	acttattttct	300
gatattcttg	acagtccgaa	ggccaagaaa	atcgggtgagg	caatcactgc	tatcgctcgtt	360
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gcaaaaaaaaa	tcgcagtgga	aaagaaaaaa	gatctttctg	catctgcccg	catggaggaa	660
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gggacggttc	tacaccctga	gccggtctac	cctaagggag	gaaaagaacc	ctcaattcct	1020
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caaatcaag	atgaagaaca	gaaacagcaa	tctaagaaga	aaagcgggaa	atcgaatcaa	1140
tctcttaaaa	ctccgcctcc	agacggaaaa	agcacggcta	acctcagccc	ctccaatcca	1200
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<210> 12

<211> 417

<212> PRT

<213> Chlamydia pneumoniae

<400> 12

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Ala Ala Ser Pro Ser Gly Gln Pro Ser Val Val Lys Arg Leu Lys Thr
20 25 30

Ser Ser Thr Gly Leu Phe Lys Arg Phe Ile Thr Ile Pro Asp Lys Tyr
35 40 45

Pro Lys Met Arg Tyr Val Tyr Asp Thr Gly Ile Ile Ala Leu Ala Ala
50 55 60

Ile Ala Ile Leu Ser Ile Leu Leu Thr Ala Ser Gly Asn Ser Leu Met
65 70 75 80

Leu Tyr Ala Leu Ala Pro Ala Leu Ala Leu Gly Ala Leu Gly Val Thr
85 90 95

Leu Leu Ile Ser Asp Ile Leu Asp Ser Pro Lys Ala Lys Lys Ile Gly
100 105 110

Glu Ala Ile Thr Ala Ile Val Val Pro Ile Ile Val Leu Ala Ile Ala
115 120 125

Ala Gly Leu Ile Ala Gly Ala Phe Val Ala Ser Ser Gly Thr Met Leu
130 135 140

Val Phe Ala Asn Pro Met Phe Val Met Gly Leu Ile Thr Val Gly Leu
145 150 155 160

Tyr Phe Met Ser Leu Asn Lys Leu Thr Leu Asp Tyr Phe Arg Arg Glu
165 170 175

His Leu Leu Arg Met Glu Lys Lys Thr Gln Glu Thr Ala Glu Pro Ile
180 185 190

Leu Val Thr Pro Ser Ala Asp Asp Ala Lys Lys Ile Ala Val Glu Lys
195 200 205

Lys Lys Asp Leu Ser Ala Ser Ala Arg Met Glu Glu His Glu Ala Ser
210 215 220

Gln Arg Gln Asp Ala Arg His Arg Arg Ile Gly Arg Glu Ala Gln Gly
225 230 235 240

Ser Phe Phe Tyr Ser Ser Arg Asn Pro Glu His Arg Arg Ser Phe Gly
245 250 255

Ser Leu Ser Arg Phe Lys Thr Lys Pro Ser Asp Ala Ala Ser Thr Arg
260 265 270

Pro Ala Ser Ile Ser Pro Pro Phe Lys Asp Asp Phe Gln Pro Tyr His
275 280 285

Phe Lys Asp Leu Arg Ser Ser Ser Phe Gly Ser Gly Ala Ser Ser Ala
290 295 300

Phe Thr Pro Ile Met Pro Ala Ser Ser Arg Ser Pro Asn Phe Ser Thr
305 310 315 320

Gly Thr Val Leu His Pro Glu Pro Val Tyr Pro Lys Gly Gly Lys Glu
325 330 335

Pro Ser Ile Pro Arg Val Ser Ser Ser Ser Arg Arg Ser Pro Arg Asp
340 345 350

Arg Gln Asp Lys Gln Gln Gln Gln Asn Gln Asp Glu Glu Gln Lys
355 360 365

Gln Gln Ser Lys Lys Lys Ser Gly Lys Ser Asn Gln Ser Leu Lys Thr
370 375 380

Pro Pro Pro Asp Gly Lys Ser Thr Ala Asn Leu Ser Pro Ser Asn Pro
385 390 395 400

Phe Ser Asp Gly Tyr Asp Glu Arg Glu Lys Arg Lys His Arg Lys Asn
405 410 415

Lys

<210> 13
 <211> 657
 <212> DNA
 <213> *Chlamydia pneumoniae*

<400> 13
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 aaatttcaag gcctaccogt acatggcccc attacttctt tatgggcttt ggagcccgtg 240
 ggtaagggag ctccgcagct ggagtctgca atgtacgagc tctgttctca agtaaggaat 300
 tttgacatct gctctattgt gagttgggtc tttggtgggt tgtgtatttt tgcagggtctg 360
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 tgtgcattat ctcaaccgat tacaaagtta cctaattggat cacgcagaga taactaa 657

<210> 14
 <211> 218
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 14
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 1 5 10 15
 Tyr Lys Asn Arg Tyr Phe Tyr Cys Gln Leu Cys Ala Glu Val Val Ser
 20 25 30
 Pro Tyr Val Val Pro Val Ile Val Val Asp Val Gln Gly Ala Pro Pro
 35 40 45
 Thr Gly Ile Leu Gln Val Leu Arg Cys Lys Gln His Lys Phe Gln Gly
 50 55 60

Leu Pro Val His Gly Pro Ile Thr Ser Leu Trp Ala Leu Glu Pro Val
65 70 75 80

Gly Lys Gly Ala Pro Gln Leu Glu Ser Ala Met Tyr Glu Leu Cys Ser
85 90 95

Gln Val Arg Asn Phe Asp Ile Cys Ser Ile Val Ser Trp Val Phe Gly
100 105 110

Gly Leu Cys Ile Phe Ala Gly Leu Ile Val Gly Val Met Val Glu Ala
115 120 125

Pro Leu Ile Ala Gly Leu Ser Ala Trp Val Ile Pro Cys Ile Ile Gly
130 135 140

Gly Val Gly Ala Ile Leu Cys Leu Phe Ala Ile Leu Met Ala Tyr Leu
145 150 155 160

Gly Arg Gly Arg Val Arg Glu Trp Leu Asn Leu Ser His Glu Tyr Ile
165 170 175

Thr Gln Cys His Cys Arg Gln Ile Gln Ala His Ser Gln Asn Tyr Ser
180 185 190

Val Ile Thr Glu Tyr Pro Ala Thr Cys Ala Leu Ser Gln Pro Ile Thr
195 200 205

Lys Leu Pro Asn Gly Ser Arg Arg Asp Asn
210 215

<210> 15
<211> 873
<212> DNA
<213> Chlamydia pneumoniae

<400> 15
atgcagattc caagaagcat tggtactcac gatggttctt tccatgcgga tgaggtcaca 60
gcgtgtgctc tccttattat tttcgatctt gtggatgaaa ataaaattat acgctctcga 120
gatcctgtcg tattatcgaa atgtgaatat gtttgtgatg tcggtggtgt ttattctata 180

gaaaacaagc gttttgatca tcatcaagtc tcttatgatg gatcttggag tagtgcaggt 240
 atgattctgc attatcttaa agagtttggt tatatggatt gtgaagaata tcatttcctt 300
 aacaacactt tggtagatgg tgtggatgaa caagataatg gcagattctt ctctaaggag 360
 ggattttggt cgttttctga tattattaaa atttataatc ctcgcgagga agaagaaact 420
 aattcggatg cggatttttc ttgtgctttg cattttacca tcgacttttt gtgtcggcta 480
 aggaagaagt ttcagtatga tcgagtttgt agggggattg tcagagaagc catggaaacc 540
 gaggatatgt gtttatattt tgatcgtcct ttagcatggc aagaaaattt ctttttttta 600
 gggggagaga agcaccctgc agcttttggt tgttttcctt cctgcgatca atggatttta 660
 cgagggattc ctccgaattt agatcgccgt atggacgttc gtgttccttt ccctgagaat 720
 tgggcaggtt tgtaggtaa agagttgtcc aaagtatcag ggattcctgg ggctgtgttc 780
 tgccataaag gtcttttcct ttctgtatgg acaaataagag aaagttgcca acgtgctttg 840
 cggttaacgt tacaagatcg agggatcata tga 873

<210> 16
 <211> 290
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 16

Met Gln Ile Pro Arg Ser Ile Gly Thr His Asp Gly Ser Phe His Ala
 1 5 10 15

Asp Glu Val Thr Ala Cys Ala Leu Leu Ile Ile Phe Asp Leu Val Asp
 20 25 30

Glu Asn Lys Ile Ile Arg Ser Arg Asp Pro Val Val Leu Ser Lys Cys
 35 40 45

Glu Tyr Val Cys Asp Val Gly Gly Val Tyr Ser Ile Glu Asn Lys Arg
 50 55 60

Phe Asp His His Gln Val Ser Tyr Asp Gly Ser Trp Ser Ser Ala Gly
 65 70 75 80

Met	Ile	Leu	His	Tyr	Leu	Lys	Glu	Phe	Gly	Tyr	Met	Asp	Cys	Glu	Glu
			85						90					95	
Tyr	His	Phe	Leu	Asn	Asn	Thr	Leu	Val	His	Gly	Val	Asp	Glu	Gln	Asp
			100					105					110		
Asn	Gly	Arg	Phe	Phe	Ser	Lys	Glu	Gly	Phe	Cys	Ser	Phe	Ser	Asp	Ile
		115					120					125			
Ile	Lys	Ile	Tyr	Asn	Pro	Arg	Glu	Glu	Glu	Glu	Thr	Asn	Ser	Asp	Ala
	130					135						140			
Asp	Phe	Ser	Cys	Ala	Leu	His	Phe	Thr	Ile	Asp	Phe	Leu	Cys	Arg	Leu
145					150					155					160
Arg	Lys	Lys	Phe	Gln	Tyr	Asp	Arg	Val	Cys	Arg	Gly	Ile	Val	Arg	Glu
				165					170					175	
Ala	Met	Glu	Thr	Glu	Asp	Met	Cys	Leu	Tyr	Phe	Asp	Arg	Pro	Leu	Ala
			180					185					190		
Trp	Gln	Glu	Asn	Phe	Phe	Phe	Leu	Gly	Gly	Glu	Lys	His	Pro	Ala	Ala
		195					200					205			
Phe	Val	Cys	Phe	Pro	Ser	Cys	Asp	Gln	Trp	Ile	Leu	Arg	Gly	Ile	Pro
	210					215					220				
Pro	Asn	Leu	Asp	Arg	Arg	Met	Asp	Val	Arg	Val	Pro	Phe	Pro	Glu	Asn
225					230					235					240
Trp	Ala	Gly	Leu	Leu	Gly	Lys	Glu	Leu	Ser	Lys	Val	Ser	Gly	Ile	Pro
				245					250					255	
Gly	Ala	Val	Phe	Cys	His	Lys	Gly	Leu	Phe	Leu	Ser	Val	Trp	Thr	Asn
			260					265					270		
Arg	Glu	Ser	Cys	Gln	Arg	Ala	Leu	Arg	Leu	Thr	Leu	Gln	Asp	Arg	Gly
		275					280					285			

Ile Ile
290

<210> 17
<211> 2058
<212> DNA
<213> *Chlamydia pneumoniae*

<400> 17
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gcgtaactttc ttggatttca tctgcctcaa cagtgtatac aagtaaattt aaaaagttcc 180
ttagcccaac taggtgtcga agccgtttta aaccacttgg agctaaataa agcccgaaaa 240
gaagctcgtc tacacgttct cttcatgagc caagatccta tagccactgc tatgttggag 300
ctcctagagc ctggaagttt tgtctgcaag ctctttgctg ctgatgatcg ccgactcgta 360
cgttcgcctt gttatctcaa caggatgttt acgcacacag accgtacagg atctccgctc 420
ctacgctttg ggaaaaaact tgagcacttc atcactctag agatcattaa tgatcggctt 480
gttgtcttcc ttccgatcct tccaggaaca atctgttacg aagagacaat ttatgggttc 540
cttcccttaa tgagcaaata actcacgcgt ccccatTTaa aaatacgtaa gtttcttcct 600
ttgtatcaaa tggtaacaga tcgtcctccc gttcccgaag atcataaaat tcttctcata 660
aagacagagc ctctgcacat ccgaaccgta tttgcaagag tcgttcagga cttactcccc 720
caagggcttc gtcacaccgc agcggatatt ctcgaaaccta ccacacaaga atctggagat 780
atttatgaat tctacggcag cacttcagaa cctattgaga gaataccttt agaatttttt 840
actcttgagc cttacaaaga gcattcgttt ttcttctata gagatatgct ccaggaaacc 900
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gctgcgatgt ttatctccaa aggtagttag ctgcttgagc tctcccaaga ctcttggatc 1020
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gaagaccaac cttgtttccc ttttttaaaa gccatggaaa cagatcatat cacaagccaa 1140
ggagttttat tttcccgeta cttcccttca gcatcgctga agggcatgtt cctctctaac 1200
tactctcgct attacctgca acatatctat tttcagattc cctctcccac ttctggagag 1260

tttttctcga atcgagatcg ctctttcctt ctcgatctat attttgcagg aatttctgta 1320
 ttttgggcag acttagaatc gaaacgactc ttacaataca tcaaacgcag aaataaagat 1380
 gtgggcatgt ttgtccctaa acatcaagct gaacagtttg ctcaatccta ctttatagga 1440
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 ggaatgcata ctctttctca gcaattcacg atcccagaat ttccaccaca gacaccgtta 1560
 gcaatcctta caggaggggg ttctggagct atggaactcg cgaatcgtgt agctacagaa 1620
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 gctaaaatga gctatgctat tcctgatctt ttagaacgtc aggccgactt ccatgtcgac 1740
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 agtctcaaaa cagggaaaaa agctcttggt cccgtcttcc taatcggacc tgtagactat 1860
 tggaaatcca agatcacagc tttgtataat tccaatcatg ctgtaggaac cattcgaggt 1920
 tctgaatggg tacacaactg cctattctgc ctatcctcag caaaggcagg cattgcaatc 1980
 ttccgcagat atctcaatca tacgctgcc ataggacctg aacaccctgt ccctgaagat 2040
 ggttttgtta tcgttttag 2058

<210> 18
 <211> 685
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 18

Met Tyr Asn Leu Leu His Ala His His Asp Ala Ala Ser Pro Asp Gly
 1 5 10 15

Arg Leu Val Ser His Leu Lys Lys Leu Ser Pro His Ile Tyr Glu Gly
 20 25 30

Glu Val Leu Ile Glu Asn Ile Pro Ala Tyr Phe Leu Gly Phe His Leu
 35 40 45

Pro Gln Gln Cys Ile Gln Val Asn Leu Lys Ser Ser Leu Ala Gln Leu
 50 55 60

Gly	Val	Glu	Ala	Val	Leu	Asn	His	Leu	Glu	Leu	Asn	Lys	Ala	Arg	Lys	65	70	75	80
Glu	Ala	Arg	Leu	His	Val	Leu	Phe	Met	Ser	Gln	Asp	Pro	Ile	Ala	Thr	85	90	95	
Ala	Met	Leu	Glu	Leu	Leu	Glu	Pro	Gly	Ser	Phe	Val	Cys	Lys	Leu	Phe	100	105	110	
Ala	Ala	Asp	Asp	Arg	Arg	Leu	Val	Arg	Ser	Pro	Cys	Tyr	Leu	Asn	Arg	115	120	125	
Met	Phe	Thr	His	Thr	Asp	Arg	Thr	Gly	Ser	Pro	Leu	Leu	Arg	Phe	Gly	130	135	140	
Lys	Lys	Leu	Glu	His	Phe	Ile	Thr	Leu	Glu	Ile	Ile	Asn	Asp	Arg	Leu	145	150	155	160
Val	Val	Phe	Leu	Pro	Ile	Leu	Pro	Gly	Thr	Ile	Cys	Tyr	Glu	Glu	Thr	165	170	175	
Ile	Tyr	Gly	Phe	Leu	Pro	Leu	Met	Ser	Lys	Ser	Leu	Thr	Arg	Pro	His	180	185	190	
Leu	Lys	Ile	Arg	Lys	Phe	Leu	Pro	Leu	Tyr	Gln	Met	Val	Thr	Asp	Arg	195	200	205	
Pro	Pro	Val	Pro	Glu	Asp	His	Lys	Ile	Leu	Leu	Ile	Lys	Thr	Glu	Pro	210	215	220	
Leu	His	Ile	Arg	Thr	Val	Phe	Ala	Arg	Val	Val	Gln	Asp	Leu	Leu	Pro	225	230	235	240
Gln	Gly	Leu	Arg	His	Thr	Ala	Ala	Asp	Ile	Leu	Glu	Pro	Thr	Thr	Gln	245	250	255	
Glu	Ser	Gly	Asp	Ile	Tyr	Glu	Phe	Tyr	Gly	Ser	Thr	Ser	Glu	Pro	Ile	260	265	270	

Glu	Arg	Ile	Pro	Leu	Glu	Phe	Phe	Thr	Leu	Glu	Pro	Tyr	Lys	Glu	His
		275					280					285			
Ser	Phe	Phe	Phe	Tyr	Arg	Asp	Met	Leu	Gln	Glu	Thr	Leu	Glu	Ser	Pro
	290					295					300				
Gln	Glu	Val	Phe	Arg	Val	Phe	Glu	Ser	Ile	Pro	Glu	Gly	Glu	Asp	Gln
305					310					315					320
Ala	Ala	Met	Phe	Ile	Ser	Lys	Gly	Ser	Glu	Leu	Leu	Glu	Leu	Ser	Gln
				325					330					335	
Asp	Ser	Trp	Ile	Ile	Lys	Pro	Arg	Ile	Ser	Pro	Ser	Asp	Glu	Arg	His
			340					345					350		
Ala	Arg	Glu	Ile	Gln	Lys	His	Ile	Glu	Asp	Gln	Pro	Cys	Phe	Pro	Phe
		355					360					365			
Leu	Lys	Ala	Met	Glu	Thr	Asp	His	Ile	Thr	Ser	Gln	Gly	Val	Leu	Phe
	370					375					380				
Ser	Arg	Tyr	Phe	Pro	Ser	Ala	Ser	Leu	Lys	Gly	Met	Phe	Leu	Ser	Asn
385					390					395					400
Tyr	Ser	Arg	Tyr	Tyr	Leu	Gln	His	Ile	Tyr	Phe	Gln	Ile	Pro	Ser	Pro
				405					410					415	
Thr	Ser	Gly	Glu	Phe	Phe	Ser	Asn	Arg	Asp	Arg	Ser	Phe	Leu	Leu	Asp
			420					425					430		
Leu	Tyr	Phe	Ala	Gly	Ile	Ser	Val	Phe	Trp	Ala	Asp	Leu	Glu	Ser	Lys
		435					440					445			
Arg	Leu	Leu	Gln	Tyr	Ile	Lys	Arg	Arg	Asn	Lys	Asp	Val	Gly	Met	Phe
	450					455					460				
Val	Pro	Lys	His	Gln	Ala	Glu	Gln	Phe	Ala	Gln	Ser	Tyr	Phe	Ile	Gly
465					470					475					480

Ile	His	Gly	Ser	Cys	Leu	Ile	Ala	Gly	Asp	Tyr	Asp	Glu	Phe	Leu	Arg
				485					490					495	
Glu	Leu	Leu	Thr	Gly	Met	His	Thr	Leu	Ser	Gln	Gln	Phe	Thr	Ile	Pro
			500					505					510		
Glu	Phe	Pro	Pro	Gln	Thr	Pro	Leu	Ala	Ile	Leu	Thr	Gly	Gly	Gly	Ser
		515					520					525			
Gly	Ala	Met	Glu	Leu	Ala	Asn	Arg	Val	Ala	Thr	Glu	Leu	Ser	Ile	Leu
	530					535					540				
Ser	Cys	Gly	Asn	Leu	Ile	Ser	Leu	Asp	Thr	Thr	Asn	Ala	Tyr	Val	Glu
545					550					555					560
Ala	Lys	Met	Ser	Tyr	Ala	Ile	Pro	Asp	Leu	Leu	Glu	Arg	Gln	Ala	Asp
				565					570					575	
Phe	His	Val	Asp	Leu	Ala	Val	Phe	Val	Ile	Gly	Gly	Met	Gly	Thr	Asp
			580					585					590		
Phe	Glu	Leu	Leu	Leu	Glu	Leu	Ile	Ser	Leu	Lys	Thr	Gly	Lys	Lys	Ala
		595					600					605			
Leu	Val	Pro	Val	Phe	Leu	Ile	Gly	Pro	Val	Asp	Tyr	Trp	Lys	Ser	Lys
	610					615					620				
Ile	Thr	Ala	Leu	Tyr	Asn	Ser	Asn	His	Ala	Val	Gly	Thr	Ile	Arg	Gly
625					630					635					640
Ser	Glu	Trp	Val	His	Asn	Cys	Leu	Phe	Cys	Leu	Ser	Ser	Ala	Lys	Ala
				645					650					655	
Gly	Ile	Ala	Ile	Phe	Arg	Arg	Tyr	Leu	Asn	His	Thr	Leu	Pro	Ile	Gly
			660					665					670		
Pro	Glu	His	Pro	Val	Pro	Glu	Asp	Gly	Phe	Val	Ile	Val			
		675					680					685			

<210> 19
 <211> 273
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 19
 ttggatgatt catggatcct agagggttaa gtcactccaa aagccaaaga gaacaaaatt 60
 gtaggctttg atggacaagc tttgaaggtc cgtggtaccg aacccccaga aaagggttaag 120
 gccaatgatg ctgtaatttc tttatttagca aaagctttat ccttaccgaa gcgtgatgtc 180
 actttaattg caggagaaac ttctcgaaag aaaaagtttc ttcttcctaa cagagttcaa 240
 gacattatatt tttctttgca tatagacgta tag 273

<210> 20
 <211> 90
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 20

Leu Asp Asp Ser Trp Ile Leu Glu Val Lys Val Thr Pro Lys Ala Lys
 1 5 10 15

Glu Asn Lys Ile Val Gly Phe Asp Gly Gln Ala Leu Lys Val Arg Val
 20 25 30

Thr Glu Pro Pro Glu Lys Gly Lys Ala Asn Asp Ala Val Ile Ser Leu
 35 40 45

Leu Ala Lys Ala Leu Ser Leu Pro Lys Arg Asp Val Thr Leu Ile Ala
 50 55 60

Gly Glu Thr Ser Arg Lys Lys Lys Phe Leu Leu Pro Asn Arg Val Gln
 65 70 75 80

Asp Ile Ile Phe Ser Leu His Ile Asp Val
 85 90

<210> 21
 <211> 672
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 21
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cctattctaa ctctcttccc ctatgcaaaa agcactccac aaaataagcg tgctcttcaa 120
ttccttccac aagcaacca tgtgattctc acaagtcctt catccactca cctattcctt 180
tccagaatga cttctcttct ttctaaggcc actctaaaaa caaagaccta cctctgtata 240
ggagagtcca ccaaagaaag acttctctct ttccttggac aagtgaagta cgtagtagca 300
actcaagaaa tcgctgaagg catcttccca ttgctacagg cactgccctc ttcagcccgc 360
attctctacc cccactcctc cctcgcaaga cctgtgatca gagaatttct ttacaatcga 420
tttacttttt tctcttacct tcactacaca gtgaagccgc gaaaacttaa aaaaaatatt 480
ttatctaaat acaaaaaaat tatcttcaca agcccttcaa ctgtaagagc tttcgccaaa 540
atctttccgc gatttctctga aaaaacctac tggtgccaag gaaggatgac cttgcaggag 600
tttcaaaagt tctcctctca aaagcaggta tctttgttag aaacgcttgg gaagtccagg 660
acatctccgt ga 672

<210> 22
<211> 94
<212> PRT
<213> *Chlamydia pneumoniae*

<400> 22

Met Thr Leu Tyr Leu Gly Leu Asn Gln Lys Thr Ala Arg Lys Tyr Gln
1 5 10 15

Ala His Tyr Leu Pro Ile Leu Thr Leu Phe Pro Tyr Ala Lys Ser Leu
20 25 30

Lys Val Arg Val Thr Glu Pro Pro Glu Lys Gly Lys Ala Asn Asp Ala
35 40 45

Val Ile Ser Leu Leu Ala Lys Ala Leu Ser Leu Pro Lys Arg Asp Val
50 55 60

Thr Leu Ile Ala Gly Glu Thr Ser Arg Lys Lys Lys Phe Leu Leu Pro
65 70 75 80

Asn Arg Val Gln Asp Ile Ile Phe Ser Leu His Ile Asp Val
85 90

<210> 23
<211> 570
<212> DNA
<213> Chlamydia pneumoniae

<400> 23
atgtcatcaa atctacatcc cgtaggagga acaggaacag gagcagctgc tcttgagtct 60
gtgctaaaca tagtagagga aatagcagca tcggggagtg tcaccgctgg tctacaagca 120
attacgtcca gtccaggaat ggtgaatcta ctcataggat gggcaaagac aaaatttatt 180
caacctatac gtgaatcaaa gctctttcaa tccagagctt gccaaattac cctgctcggt 240
ttaggaattc ttttggttgt tgctggatta gcatgtatgt ttatcttcca tagccagtta 300
ggggcaaagt cattttgggt gattattcct gctgccatag gattgattaa gttactagtt 360
acatcattat gttttgatga agcttgtaca tctgaaaaac tcatgggttt ccaaaaatgg 420
gcaggtgttt tagaagatca gctcgatgat gggatcctta ataactcaaa taagattttt 480
ggccatgtga aaacagaagg aaatacctct agggctacta cccagtgact taatgatggc 540
cgcggaactc ctgtactttc accttttagta 570

<210> 24
<211> 190
<212> PRT
<213> Chlamydia pneumoniae

<400> 24

Met Ser Ser Asn Leu His Pro Val Gly Gly Thr Gly Thr Gly Ala Ala
1 5 10 15

Ala Pro Glu Ser Val Leu Asn Ile Val Glu Glu Ile Ala Ala Ser Gly
20 25 30

Ser Val Thr Ala Gly Leu Gln Ala Ile Thr Ser Ser Pro Gly Met Val
35 40 45

Asn Leu Leu Ile Gly Trp Ala Lys Thr Lys Phe Ile Gln Pro Ile Arg
50 55 60

Glu Ser Lys Leu Phe Gln Ser Arg Ala Cys Gln Ile Thr Leu Leu Val
65 70 75 80

Leu Gly Ile Leu Leu Val Val Ala Gly Leu Ala Cys Met Phe Ile Phe
85 90 95

His Ser Gln Leu Gly Ala Asn Ala Phe Trp Leu Ile Ile Pro Ala Ala
100 105 110

Ile Gly Leu Ile Lys Leu Leu Val Thr Ser Leu Cys Phe Asp Glu Ala
115 120 125

Cys Thr Ser Glu Lys Leu Met Val Phe Gln Lys Trp Ala Gly Val Leu
130 135 140

Glu Asp Gln Leu Asp Asp Gly Ile Leu Asn Asn Ser Asn Lys Ile Phe
145 150 155 160

Gly His Val Lys Thr Glu Gly Asn Thr Ser Arg Ala Thr Thr Pro Val
165 170 175

Leu Asn Asp Gly Arg Gly Thr Pro Val Leu Ser Pro Leu Val
180 185 190

<210> 25
<211> 828
<212> DNA
<213> Chlamydia pneumoniae

<400> 25
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cgtcataatc ctctaaatac ataccactcc tcaaacacaa ctgaaactcg tcgcttacca 120
acatactata aatccaacat tgtcttaaaa atgattttac ggatctccac cgtaagcctt 180
cttacaagtt gctccttctc gaaaaattct cgtacctgtt tcgtcactcc agaacgcatt 240
acctcacaaa aagactgccc cgtccttctc catccaaaaa gcactacgat ttctccccct 300
ctctatgact ggatctcccc aaatagagag gtaatcaccg cctattcttt ctactgccga 360
ggatcaaggaa actctatcat aactcccgaa ggggttctct atgattgtga tggactccat 420

cacagcataa ctaaagaaga gttccggttat atccatccta gattgattga ggtagtacga 480
ctcttgcaac aagatcaccc taaagtctct attattgaag ccttttggtg tcctaaacac 540
tttcattttt tagaagcctc aggaatctca ctctctcaac tccatctcca aggtactgca 600
gctaccttcg ctctagatcc tcccctcccc atggagaaac tcttggcaac tataaagaaa 660
ctgtataaaa aaaactccga tccttctctc tctaatttta tcgttacaga agctacactg 720
accaatccag aactgcgact cacgcaacaa gatctcggct cgcatacaga aattactgta 780
gaaattctcg ataatctaca aaacaaagag gctctttcct ccgcataa 828

<210> 26
<211> 142
<212> PRT
<213> Chlamydia pneumoniae

<400> 26

Met His Asp Lys Asn Lys Val Leu Tyr Leu Gln Ala Asn His Leu Asn
1 5 10 15

Gln Lys Arg Lys Arg His Asn Pro Leu Asn Thr Tyr His Ser Ser Asn
20 25 30

Thr Thr Glu Thr Arg Arg Leu Pro Thr Tyr Tyr Lys Ser Asn Ile Val
35 40 45

Leu Lys Met Ile Leu Arg Ile Ser Thr Val Ser Leu Leu Thr Ser Cys
50 55 60

Ser Phe Ser Lys Asn Ser Arg Thr Cys Phe Val Thr Pro Glu Arg Leu
65 70 75 80

Lys Val Arg Val Thr Glu Pro Pro Glu Lys Gly Lys Ala Asn Asp Ala
85 90 95

Val Ile Ser Leu Leu Ala Lys Ala Leu Ser Leu Pro Lys Arg Asp Val
100 105 110

Thr Leu Ile Ala Gly Glu Thr Ser Arg Lys Lys Lys Phe Leu Leu Pro
115 120 125

Asn Arg Val Gln Asp Ile Ile Phe Ser Leu His Ile Asp Val
 130 135 140

<210> 27
 <211> 546
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 27
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 tctcaaattct tcgatcccat tagaaatcgg gagttagttt ctactcccga agaaaaagtc 120
 cgccaaaggt tgctctcctt cctaattgcat aagctgaact accctaagaa actcatcatc 180
 atagaaaaag aactcaaaac tctttttcct ctgcttatgc gttaaaggaac cctaattcca 240
 aaacgccgcc cagatattct catcatcact cccccacat acacagacgc acagggaaac 300
 actcacaacc taggcgaccc aaaaccctg ctacttatcg aatgtaaggc cttagccgta 360
 aaccaaaatg cactcaaaca actccttagc tataactact ctatcggagc cacctgcatt 420
 gctatggcag ggaaacactc tcaagtgtca gctctcttca atccaaaaac acaaactctt 480
 gattttttatc ctggcctccc agagtattcc caactcctaa actactttat ttctttaaac 540
 ttatag 546

<210> 28
 <211> 106
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 28

Met Ser Leu Leu Asn Leu Pro Ser Ser Gln Asp Ser Ala Ser Glu Asp
 1 5 10 15

Ser Thr Ser Gln Ser Gln Ile Phe Asp Pro Ile Arg Asn Arg Glu Leu
 20 25 30

Val Ser Thr Pro Glu Glu Lys Val Arg Gln Arg Leu Lys Val Arg Val
 35 40 45

Thr Glu Pro Pro Glu Lys Gly Lys Ala Asn Asp Ala Val Ile Ser Leu

50

55

60

Leu Ala Lys Ala Leu Ser Leu Pro Lys Arg Asp Val Thr Leu Ile Ala
 65 70 75 80

Gly Glu Thr Ser Arg Lys Lys Lys Phe Leu Leu Pro Asn Arg Val Gln
 85 90 95

Asp Ile Ile Phe Ser Leu His Ile Asp Val
 100 105

<210> 29

<211> 972

<212> DNA

<213> Chlamydia pneumoniae

<400> 29

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gtttccggtc aagaatgggt aaagcgtggt tctgacggca ccatcaccaa agtactcaaa	180
aatggagcta ccctgcatga agtttattct ggaggcctcc ttcattgggga aattacctta	240
acgtttcccc ataccacagc attggacggt gttcaaattct atgatcaagg tagactcggt	300
tctcgcaaaa ctttttttgt gaacggtctt ccatctcaag aagagctggt caatgaagat	360
ggcacgtttg tcctcacacg atggccggac aacaacgaca gtgataccat cacaaagcct	420
tacttcatag aaacgacata tcaagggcat gtcatagaag gaagttatac ttcctttaat	480
gggaaatact cctcatccat ccacaatgga gagggagttc gttctgtggt ctccctccaat	540
aacatccttc tttctgaaga gaccttcaat gaaggtgtca tggtgaaata taccacattc	600
tatccgaatc gcgatcccga atcgattact cattatcaaa atggacagcc tcacggctta	660
cggctaacat atctacaagg tggcatcccc aatacgatag aggagtggcg ttatggcttt	720
caagacggaa cgaccatcgt atttaaaaat ggttgtaaga catctgagat cgcttatggt	780
aagggagtga aagaaggttt agaactgctc tacaatgaac aggaaattgt agctgaagaa	840
gtttcttggc gtaatgattt tctgcatgga gaacgtaaga tctatgctgg aggaatccaa	900
aagcatgaat ggtattaccg cgggagatct gtatctaaag ccaaattcga gcggctaaat	960

gctgcaggat ag

972

<210> 30

<211> 323

<212> PRT

<213> Chlamydia pneumoniae

<400> 30

Met Lys Gln Leu Leu Phe Cys Val Cys Val Phe Ala Met Ser Cys Ser
1 5 10 15

Ala Tyr Ala Ser Pro Arg Arg Gln Asp Pro Ser Val Met Lys Glu Thr
20 25 30

Phe Arg Asn Asn Tyr Gly Ile Ile Val Ser Gly Gln Glu Trp Val Lys
35 40 45

Arg Gly Ser Asp Gly Thr Ile Thr Lys Val Leu Lys Asn Gly Ala Thr
50 55 60

Leu His Glu Val Tyr Ser Gly Gly Leu Leu His Gly Glu Ile Thr Leu
65 70 75 80

Thr Phe Pro His Thr Thr Ala Leu Asp Val Val Gln Ile Tyr Asp Gln
85 90 95

Gly Arg Leu Val Ser Arg Lys Thr Phe Phe Val Asn Gly Leu Pro Ser
100 105 110

Gln Glu Glu Leu Phe Asn Glu Asp Gly Thr Phe Val Leu Thr Arg Trp
115 120 125

Pro Asp Asn Asn Asp Ser Asp Thr Ile Thr Lys Pro Tyr Phe Ile Glu
130 135 140

Thr Thr Tyr Gln Gly His Val Ile Glu Gly Ser Tyr Thr Ser Phe Asn
145 150 155 160

Gly Lys Tyr Ser Ser Ser Ile His Asn Gly Glu Gly Val Arg Ser Val
165 170 175

Phe Ser Ser Asn Asn Ile Leu Leu Ser Glu Glu Thr Phe Asn Glu Gly
180 185 190

Val Met Val Lys Tyr Thr Thr Phe Tyr Pro Asn Arg Asp Pro Glu Ser
195 200 205

Ile Thr His Tyr Gln Asn Gly Gln Pro His Gly Leu Arg Leu Thr Tyr
210 215 220

Leu Gln Gly Gly Ile Pro Asn Thr Ile Glu Glu Trp Arg Tyr Gly Phe
225 230 235 240

Gln Asp Gly Thr Thr Ile Val Phe Lys Asn Gly Cys Lys Thr Ser Glu
245 250 255

Ile Ala Tyr Val Lys Gly Val Lys Glu Gly Leu Glu Leu Arg Tyr Asn
260 265 270

Glu Gln Glu Ile Val Ala Glu Glu Val Ser Trp Arg Asn Asp Phe Leu
275 280 285

His Gly Glu Arg Lys Ile Tyr Ala Gly Gly Ile Gln Lys His Glu Trp
290 295 300

Tyr Tyr Arg Gly Arg Ser Val Ser Lys Ala Lys Phe Glu Arg Leu Asn
305 310 315 320

Ala Ala Gly

<210> 31

<211> 429

<212> DNA

<213> Chlamydia pneumoniae

<400> 31

atgagtttag attttttcga ggagttctat catcagtcaa tactcaatac agggacgtcc 60

ttccccgaag gataacttaaa tattgcagaa atactctctt atcctcattg cactgatgct 120

aacactgact ttctctgtag ccagtctgac aacgatttta ttattgcaga atctaaagat 180

aaactcacat tatttaacgc tgattttgct atttggtctg ttcctgagct tgttcaagga 240
caggcagtca ctcggggata tattgcggtt tcccaaggag aaggaaacta tgaaccagaa 300
atggctttcg aagcctctgg acaatacaat cagtcgtcgc tgattctcga agccctgcag 360
ttatatctta aggatattaa agatactgaa aatgctctgc gttctttccg ctttaataac 420
gatcactag 429

<210> 32
<211> 142
<212> PRT
<213> Chlamydia pneumoniae

<400> 32

Met Ser Leu Asp Phe Phe Glu Glu Phe Tyr His Gln Ser Ile Leu Asn
1 5 10 15

Thr Gly Thr Ser Phe Pro Glu Gly Tyr Leu Asn Ile Ala Glu Ile Leu
20 25 30

Ser Tyr Pro His Cys Thr Asp Ala Asn Thr Asp Phe Leu Cys Ser Gln
35 40 45

Ser Asp Asn Asp Phe Ile Ile Ala Glu Ser Lys Asp Lys Leu Thr Leu
50 55 60

Phe Asn Ala Asp Phe Ala Ile Trp Leu Val Pro Glu Leu Val Gln Gly
65 70 75 80

Gln Ala Val Thr Arg Gly Tyr Ile Ala Val Ser Gln Gly Glu Gly Asn
85 90 95

Tyr Glu Pro Glu Met Ala Phe Glu Ala Ser Gly Gln Tyr Asn Gln Ser
100 105 110

Ser Leu Ile Leu Glu Ala Leu Gln Leu Tyr Leu Lys Asp Ile Lys Asp
115 120 125

Thr Glu Asn Ala Leu Arg Ser Phe Arg Phe Asn Asn Asp His
130 135 140

<210> 33
 <211> 180
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 33
 gtgtctattg ccttaaaccg agaagaagtt tgggataatc cccatcactt aatgtttatc 60
 ttaatgcaat tccaacaatt ttcaggggaa caggatcggt ttggaagttt cttagaagca 120
 accatccgtg atcgggtctc ttttttagtc ttacaagaaa agattgccac tttaaagtag 180

<210> 34
 <211> 59
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 34
 Val Ser Ile Ala Leu Asn Arg Glu Glu Val Trp Asp Asn Pro His His
 1 5 10 15
 Leu Met Phe Ile Leu Met Gln Phe Gln Gln Phe Ser Gly Glu Gln Asp
 20 25 30
 Arg Phe Gly Ser Phe Leu Glu Ala Thr Ile Arg Asp Arg Val Ser Phe
 35 40 45
 Leu Val Leu Gln Glu Lys Ile Ala Thr Leu Lys
 50 55

<210> 35
 <211> 675
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 35
 atgcaaacc ttgctcgtct atttggccaa tctccatttg ctcttttaca agtcatctg 60
 gaaatggtgg tctcttgtgt ggaatacatg cttcctatat tctactgctct ccgagatgga 120
 agatatgaag aattattaga aatggcaaaa cttgttttctg ataaagagta tcaagcagat 180
 tgtataaaaa atgatatgag gaatcatctt cctgcaggat tattcatgcc gatattctga 240
 gcggggattc tagaaattat ttctatacaa gatagcatcg cggatactgc tgaagatggt 300

gctatcttat taaccatcag acgattaaac ttttatccat ctatggaaac gctttttttc 360
cgatttttgg aaaaaaatct agaagctttt gagttaacta tgacattgct acatgaattc 420
aaccaattgc ttgaaagtgc atttgggggg aggaaggcag ataaagcacg cttgcttgta 480
gggcgtgtgg ctaaactctga acatgaatcg gatgttttgc aacgagaact tatgcaaata 540
tttttttctg atgattttat aattcctgaa aaagagtttt atctttgggtt acaagtaatt 600
cgacgcactg cggggatttc agatagttct gaaaagctcg cacatagaat taatatgacc 660
ctagaagaaa agtaa 675

<210> 36
<211> 224
<212> PRT
<213> Chlamydia pneumoniae

<400> 36

Met Gln Thr Leu Ala Arg Leu Phe Gly Gln Ser Pro Phe Ala Pro Leu
1 5 10 15

Gln Ala His Leu Glu Met Val Val Ser Cys Val Glu Tyr Met Leu Pro
20 25 30

Ile Phe Thr Ala Leu Arg Asp Gly Arg Tyr Glu Glu Leu Leu Glu Met
35 40 45

Ala Lys Leu Val Ser Asp Lys Glu Tyr Gln Ala Asp Cys Ile Lys Asn
50 55 60

Asp Met Arg Asn His Leu Pro Ala Gly Leu Phe Met Pro Ile Ser Arg
65 70 75 80

Ala Gly Ile Leu Glu Ile Ile Ser Ile Gln Asp Ser Ile Ala Asp Thr
85 90 95

Ala Glu Asp Val Ala Ile Leu Leu Thr Ile Arg Arg Leu Asn Phe Tyr
100 105 110

Pro Ser Met Glu Thr Leu Phe Phe Arg Phe Leu Glu Lys Asn Leu Glu
115 120 125

Ala Phe Glu Leu Thr Met Thr Leu Leu His Glu Phe Asn Gln Leu Leu
 130 135 140

Glu Ser Ser Phe Gly Gly Arg Lys Ala Asp Lys Ala Arg Leu Leu Val
 145 150 155 160

Gly Arg Val Ala Lys Ser Glu His Glu Ser Asp Val Leu Gln Arg Glu
 165 170 175

Leu Met Gln Ile Phe Phe Ser Asp Asp Phe Ile Ile Pro Glu Lys Glu
 180 185 190

Phe Tyr Leu Trp Leu Gln Val Ile Arg Arg Thr Ala Gly Ile Ser Asp
 195 200 205

Ser Ser Glu Lys Leu Ala His Arg Ile Asn Met Thr Leu Glu Glu Lys
 210 215 220

<210> 37
 <211> 2538
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 37
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 cctaaactcg gtgcatcgca agccattatc aataagactg acggaagcta ctacatcaca 180
 aatttagatg atacaattcc tattgttgta aatggcgtag cgatccaaga aactacacag 240
 ttaaaaaatg aagatactat cttattagga agcaatcagt attctttctt atcagatgaa 300
 tttgatcctc aagatcttgt ttatgatttt gatattcccg aagaaaattt ttctaattgat 360
 tcaggggatt tgtccgatag taatgaacag ggaaaagatc ttgagcctcg gcaaacttcg 420
 gaaacaaatc attcaccgaa gcctaaggaa aagctgacca aagatcaggg aagtagcgat 480
 ccaattacaa gtgggggatca ggagcttgct gatgcttttt tagcatcagc aaaagcggaa 540
 aaaaatcaac caagagccaa agttgctaag aagggttttaa aagaatcttc aaacgagtct 600
 ttgaatccaa aggaacaaaa tgcaaaggat tctccgaaag gagaggaaag aaccaacaaa 660

ccccagaacg	ccattatgga	agataacgga	gcttcgccta	ggcaagatcc	gcaaccaaag	720
tcagcagaac	cctctcttaa	aaacacagcc	agggatgaga	ctcccttgaa	agaaaataaa	780
cctgtagaag	agaaggctaa	taagaaagca	acaccggatt	ctccagaaaa	aaaagatcaa	840
cctgaggaag	gttctaaaaa	ggaaggctct	aaaatagaag	caacaccttt	ggattcacia	900
aaagaatccg	aggataagga	agcagaagaa	gcctttgtac	aagaagaaga	agagaacctt	960
acggaagata	ataaagaaga	ttctgacagt	gccgctgatg	caaatagacga	cacggcaagt	1020
gaccatactg	cagaggataa	caaagaaact	cctaaaaaag	tcgagaacga	aaagagcgcga	1080
gttctatccc	catttcatgt	tcaagactta	tttcgattcg	atcaaacaat	ttttccagca	1140
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ttactcaaag	ttttagccgg	agctaataatt	ggagcagagt	tccattttaga	ctcaggaaaa	1260
acctatattt	taggtacgga	tcctacaact	tgtgacatag	tatttaaatga	cttaagtgtt	1320
tctcatcaac	atgctaaaat	tactgtcggg	aatgacgggg	gcattcttat	cgaggatctc	1380
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tcgaatcaag	ttgtggcttt	aggaacgaca	ttattttttac	ttatagatca	tcattgcccc	1500
gctgatacta	tagttgcttc	tctatcccca	gacgattaca	gtttgtttgg	gagacagcaa	1560
gacgccgaag	ccttagaaaag	acaagaggcc	caagaagaag	aagaaaaaca	aaaacgcgct	1620
acactacccg	caggatcttt	cattcttacc	ctgtttgttg	gaggattggc	tattctcttt	1680
ggtataggaa	cagcttctct	tttccatacc	aaagaagtgg	ttccttttaga	aaatattgat	1740
tatcaagaag	atcttgccca	ggttatcaat	cagttcccta	cggtgcgtta	tacgtttaat	1800
aaaacgaaca	gccaactttt	cttaatcgga	catgtcaaaa	atagtacgga	caaaagcgag	1860
ctgctgtata	aagtagacgc	cctttccttt	gtgaaatccg	tagatgataa	tgttattgat	1920
gatgaagctg	tttggcagga	gatgaacatc	ctgttatcaa	agcgacccga	gtttaaaggc	1980
atcagcatgc	attccccaga	acctgggaaa	ttcatcatca	caggctatgt	caagactgag	2040
gagcaagcag	cttgccctcgt	tgattattta	aatatacatt	ttaattacct	ctcgttacta	2100
gagaataaag	ttgttggtga	aaccagatg	ttaaaagcaa	ttgcaggcca	tcttcttcaa	2160
ggagggtttg	caaacatcca	tgtggccttt	gtgaacggtg	aagttatcct	tactggttac	2220

gtcaataacg atgatgcaga gaagttccgt gctgtagtgc aagagctgtc ggggattcct 2280
 ggtgtgaggt tgggtcaagaa ttttgctgtc ttactcccag ctgaagaggg aatcatagat 2340
 ttaaacctac gttaccccaa tcgctatcgt gttacaggct attctagata cggagaaata 2400
 agtatcaatg tagttgtcaa tggcagaatc ctcacaagag gggacgtgat tgatgggatg 2460
 acagtaacaa gtatacaacc taacgcgatc tttttagaga aggaagggtt gaaatataaa 2520
 atagactaca ataaataa 2538

<210> 38
 <211> 845
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 38

Met Ala Val Arg Leu Ile Val Asp Glu Gly Pro Leu Ser Gly Val Ile
 1 5 10 15

Phe Val Leu Glu Asp Gly Ile Ser Trp Ser Ile Gly Arg Asp Ser Ser
 20 25 30

Ala Asn Asp Ile Pro Ile Glu Asp Pro Lys Leu Gly Ala Ser Gln Ala
 35 40 45

Ile Ile Asn Lys Thr Asp Gly Ser Tyr Tyr Ile Thr Asn Leu Asp Asp
 50 55 60

Thr Ile Pro Ile Val Val Asn Gly Val Ala Ile Gln Glu Thr Thr Gln
 65 70 75 80

Leu Lys Asn Glu Asp Thr Ile Leu Leu Gly Ser Asn Gln Tyr Ser Phe
 85 90 95

Leu Ser Asp Glu Phe Asp Pro Gln Asp Leu Val Tyr Asp Phe Asp Ile
 100 105 110

Pro Glu Glu Asn Phe Ser Asn Asp Ser Gly Asp Leu Ser Asp Ser Asn
 115 120 125

Glu	Gln	Gly	Lys	Asp	Leu	Glu	Pro	Arg	Gln	Thr	Ser	Glu	Thr	Asn	His
130						135					140				
Ser	Pro	Lys	Pro	Lys	Glu	Lys	Leu	Thr	Lys	Asp	Gln	Gly	Ser	Ser	Asp
145					150					155					160
Pro	Ile	Thr	Ser	Gly	Asp	Gln	Glu	Leu	Ala	Asp	Ala	Phe	Leu	Ala	Ser
				165					170					175	
Ala	Lys	Ala	Glu	Lys	Asn	Gln	Pro	Arg	Ala	Lys	Val	Ala	Lys	Lys	Gly
			180					185					190		
Leu	Lys	Glu	Ser	Ser	Asn	Glu	Ser	Leu	Asn	Pro	Lys	Glu	Gln	Asn	Ala
		195					200					205			
Lys	Asp	Ser	Pro	Lys	Gly	Glu	Glu	Arg	Thr	Asn	Lys	Pro	Gln	Asn	Ala
	210					215					220				
Ile	Met	Glu	Asp	Asn	Gly	Ala	Ser	Pro	Arg	Gln	Asp	Pro	Gln	Pro	Lys
225					230					235					240
Ser	Ala	Glu	Pro	Ser	Leu	Lys	Asn	Thr	Ala	Arg	Asp	Glu	Thr	Pro	Leu
				245					250					255	
Lys	Glu	Asn	Lys	Pro	Val	Glu	Glu	Lys	Ala	Asn	Lys	Lys	Ala	Thr	Pro
			260					265					270		
Asp	Ser	Pro	Glu	Lys	Lys	Asp	Gln	Pro	Glu	Glu	Gly	Ser	Lys	Lys	Glu
		275					280					285			
Gly	Ser	Lys	Ile	Glu	Ala	Thr	Pro	Leu	Asp	Ser	Gln	Lys	Glu	Ser	Glu
	290					295					300				
Asp	Lys	Glu	Ala	Glu	Glu	Ala	Phe	Val	Gln	Glu	Glu	Glu	Glu	Asn	Leu
305					310					315					320
Thr	Glu	Asp	Asn	Lys	Glu	Asp	Ser	Asp	Ser	Ala	Ala	Asp	Ala	Asn	Asp
				325					330					335	

Asp	Thr	Ala	Ser	Asp	His	Thr	Ala	Glu	Asp	Asn	Lys	Glu	Thr	Pro	Lys	340	345	350
Lys	Val	Glu	Asn	Glu	Lys	Ser	Ala	Val	Leu	Ser	Pro	Phe	His	Val	Gln	355	360	365
Asp	Leu	Phe	Arg	Phe	Asp	Gln	Thr	Ile	Phe	Pro	Ala	Glu	Ile	Asp	Asp	370	375	380
Ile	Ala	Lys	Lys	Asn	Ile	Ser	Val	Asp	Leu	Thr	Gln	Pro	Ser	Arg	Phe	385	390	395
Leu	Leu	Lys	Val	Leu	Ala	Gly	Ala	Asn	Ile	Gly	Ala	Glu	Phe	His	Leu	405	410	415
Asp	Ser	Gly	Lys	Thr	Tyr	Ile	Leu	Gly	Thr	Asp	Pro	Thr	Thr	Cys	Asp	420	425	430
Ile	Val	Phe	Asn	Asp	Leu	Ser	Val	Ser	His	Gln	His	Ala	Lys	Ile	Thr	435	440	445
Val	Gly	Asn	Asp	Gly	Gly	Ile	Leu	Ile	Glu	Asp	Leu	Asp	Ser	Lys	Asn	450	455	460
Gly	Val	Ile	Val	Glu	Gly	Arg	Lys	Ile	Asp	Lys	Thr	Ser	Thr	Leu	Ser	465	470	475
Ser	Asn	Gln	Val	Val	Ala	Leu	Gly	Thr	Thr	Leu	Phe	Leu	Leu	Ile	Asp	485	490	495
His	His	Ala	Pro	Ala	Asp	Thr	Ile	Val	Ala	Ser	Leu	Ser	Pro	Asp	Asp	500	505	510
Tyr	Ser	Leu	Phe	Gly	Arg	Gln	Gln	Asp	Ala	Glu	Ala	Leu	Glu	Arg	Gln	515	520	525
Glu	Ala	Gln	Glu	Glu	Glu	Glu	Lys	Gln	Lys	Arg	Ala	Thr	Leu	Pro	Ala	530	535	540

Gly 545	Ser	Phe	Ile	Leu	Thr 550	Leu	Phe	Val	Gly	Gly 555	Leu	Ala	Ile	Leu	Phe 560
Gly	Ile	Gly	Thr	Ala 565	Ser	Leu	Phe	His	Thr 570	Lys	Glu	Val	Val	Pro 575	Leu
Glu	Asn	Ile	Asp 580	Tyr	Gln	Glu	Asp	Leu 585	Ala	Gln	Val	Ile	Asn 590	Gln	Phe
Pro	Thr	Val 595	Arg	Tyr	Thr	Phe	Asn 600	Lys	Thr	Asn	Ser	Gln 605	Leu	Phe	Leu
Ile	Gly 610	His	Val	Lys	Asn	Ser 615	Thr	Asp	Lys	Ser	Glu 620	Leu	Leu	Tyr	Lys
Val 625	Asp	Ala	Leu	Ser	Phe 630	Val	Lys	Ser	Val	Asp 635	Asp	Asn	Val	Ile	Asp 640
Asp	Glu	Ala	Val	Trp 645	Gln	Glu	Met	Asn	Ile 650	Leu	Leu	Ser	Lys	Arg 655	Pro
Glu	Phe	Lys	Gly 660	Ile	Ser	Met	His	Ser 665	Pro	Glu	Pro	Gly	Lys 670	Phe	Ile
Ile	Thr	Gly 675	Tyr	Val	Lys	Thr	Glu 680	Glu	Gln	Ala	Ala	Cys 685	Leu	Val	Asp
Tyr	Leu 690	Asn	Ile	His	Phe	Asn 695	Tyr	Leu	Ser	Leu	Leu 700	Glu	Asn	Lys	Val
Val 705	Val	Glu	Thr	Gln	Met 710	Leu	Lys	Ala	Ile	Ala 715	Gly	His	Leu	Leu	Gln 720
Gly	Gly	Phe	Ala	Asn 725	Ile	His	Val	Ala	Phe 730	Val	Asn	Gly	Glu	Val 735	Ile
Leu	Thr	Gly	Tyr 740	Val	Asn	Asn	Asp	Asp 745	Ala	Glu	Lys	Phe	Arg 750	Ala	Val

Val Gln Glu Leu Ser Gly Ile Pro Gly Val Arg Leu Val Lys Asn Phe
755 760 765

Ala Val Leu Leu Pro Ala Glu Glu Gly Ile Ile Asp Leu Asn Leu Arg
770 775 780

Tyr Pro Asn Arg Tyr Arg Val Thr Gly Tyr Ser Arg Tyr Gly Glu Ile
785 790 795 800

Ser Ile Asn Val Val Val Asn Gly Arg Ile Leu Thr Arg Gly Asp Val
805 810 815

Ile Asp Gly Met Thr Val Thr Ser Ile Gln Pro Asn Ala Ile Phe Leu
820 825 830

Glu Lys Glu Gly Leu Lys Tyr Lys Ile Asp Tyr Asn Lys
835 840 845

<210> 39
<211> 237
<212> DNA
<213> Chlamydia pneumoniae

<400> 39
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attaaagaag ttcaggggac tcacacgatt atttatgaac taagtgtagc taaacctgat 120
atcggaaga tcattggcaa agaaggccgt acgatcaaag cgattcgtac tcttctggtt 180
tctgtagcaa gcaggaacaa tgtaagggtc agtttagaaa ttatggaaga aaagtag 237

<210> 40
<211> 78
<212> PRT
<213> Chlamydia pneumoniae

<400> 40

Met Lys Glu Phe Leu Ala Tyr Ile Ile Lys Asn Leu Val Asp Arg Pro
1 5 10 15

Glu Glu Val Arg Ile Lys Glu Val Gln Gly Thr His Thr Ile Ile Tyr
20 25 30

Glu Leu Ser Val Ala Lys Pro Asp Ile Gly Lys Ile Ile Gly Lys Glu
 35 40 45

Gly Arg Thr Ile Lys Ala Ile Arg Thr Leu Leu Val Ser Val Ala Ser
 50 55 60

Arg Asn Asn Val Arg Val Ser Leu Glu Ile Met Glu Glu Lys
 65 70 75

<210> 41
 <211> 228
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 41
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 catatgcaac agcaactcgc tcgcttggag tttatcaacg accagctgac tacagagtta 120
 gaacatgtaa atgaattatt atgtagttaa ggtttccctg aaggtctcac tacaatcaag 180
 gcaatcgcag aggaagtcct ctctgatgac gaacctctac tagattag 228

<210> 42
 <211> 75
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 42

Met Phe Phe Ala Pro Leu Leu Tyr Glu Ser Leu Arg Arg Gly Leu Met
 1 5 10 15

His Pro Thr Ser His Met Gln Gln Gln Leu Ala Arg Leu Glu Phe Ile
 20 25 30

Asn Asp Gln Leu Thr Thr Glu Leu Glu His Val Asn Glu Leu Leu Cys
 35 40 45

Ser Leu Gly Phe Pro Glu Gly Leu Thr Thr Ile Lys Ala Ile Ala Glu
 50 55 60

Glu Val Leu Ser Asp Asp Glu Pro Leu Leu Asp

65

70

75

<210> 43

<211> 1269

<212> DNA

<213> *Chlamydia pneumoniae*

<400> 43

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gacgaagtca aagactactt aagtaaacgg ggttttgtag aaacgcgaaa gcaagatggc	180
gttttaagaa tagcaggaga tgtttagagcc cgggtggttg atttcagaga agatatcaaa	240
aaccctcag ataaagataa atacaatccc ttaccagtaa atcgttatcg tagtgaattt	300
tatctctata ttgattatcg cgctgagagg aactggctgt cttcaaagat gaattggaca	360
gcaattgcag gaggggaaaa cactgcagct ggtgttgata tcaacagagc atttctagga	420
tatcgttttt ataagaatcc cgaaacacgt acagatttct ttatggaaat cggacgttct	480
ggtttaggag atctctttga gtcagaagtc caattccaaa gtaattttga cggactacat	540
atatattgga ctcgagaact ttctaaggac tatccttadc aagtgattgt tcatggaggt	600
cctttcgtcg tgaacatgac aaaaaaacat tatgcttggg ttgtagaagg gattctcaat	660
cgtttgcta aacagttttt tgtgaaatgt agtgttgctg actggaacac attcgttcct	720
tcagaaacct ccactacaga aaaagctgct acaaacgcta tgaaatacaa atactgtgtt	780
tggcagtggc tcgtcggaaa gcatagtcag gttccttgga tcaatggaca gaaaaagcct	840
ctatatcttt atggagcttt cttaatgaac cctttagcaa aggctacgaa gactacgtta	900
aatggaaaag aaaacctagc ttggtttatt ggaggaactt tagggggact cagaaaagct	960
ggagactggc ctgccacagt acgttatgag tatgtcgaag ccttgctcgt tccagaaata	1020
gatgtttcag ggattggccg tggttaattta ttaaagtttt ggttcgcca agcaattgct	1080
gctaactatg atcctaaaga ggctaattgg ttacaaatt ataaaggatt ttccgctcta	1140
tatatgtatg gcatcacaga ttctctatca ttcagagctt atggggctta ctccaaacca	1200
gcaaacgata aactcggcag tgattttact ttccgaaagt ttgatctagg tataatttca	1260
gcgttttaa	1269

<210> 44
 <211> 422
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 44

Met Lys Lys Gln Val Tyr Gln Trp Leu Ala Ser Val Val Leu Leu Ala
 1 5 10 15

Leu Thr Ile Ser Gly Tyr Ala Glu Leu Pro Leu Ser Glu Gln Lys Val
 20 25 30

Lys Ser His Thr Tyr Thr Thr Leu Asp Glu Val Lys Asp Tyr Leu Ser
 35 40 45

Lys Arg Gly Phe Val Glu Thr Arg Lys Gln Asp Gly Val Leu Arg Ile
 50 55 60

Ala Gly Asp Val Arg Ala Arg Trp Leu Tyr Phe Arg Glu Asp Ile Lys
 65 70 75 80

Asn Pro Ser Asp Lys Asp Lys Tyr Asn Pro Leu Pro Val Asn Arg Tyr
 85 90 95

Arg Ser Glu Phe Tyr Leu Tyr Ile Asp Tyr Arg Ala Glu Arg Asn Trp
 100 105 110

Leu Ser Ser Lys Met Asn Trp Thr Ala Ile Ala Gly Gly Glu Asn Thr
 115 120 125

Ala Ala Gly Val Asp Ile Asn Arg Ala Phe Leu Gly Tyr Arg Phe Tyr
 130 135 140

Lys Asn Pro Glu Thr Arg Thr Asp Phe Phe Met Glu Ile Gly Arg Ser
 145 150 155 160

Gly Leu Gly Asp Leu Phe Glu Ser Glu Val Gln Phe Gln Ser Asn Phe
 165 170 175

Asp	Gly	Leu	His 180	Ile	Tyr	Trp	Thr	Arg 185	Glu	Leu	Ser	Lys	Asp 190	Tyr	Pro	
Tyr	Gln	Val 195	Ile	Val	His	Gly	Gly 200	Pro	Phe	Val	Val	Asn 205	Met	Thr	Lys	
Lys	His 210	Tyr	Ala	Trp	Val	Val 215	Glu	Gly	Ile	Leu	Asn 220	Arg	Leu	Pro	Lys	
Gln 225	Phe	Phe	Val	Lys	Cys 230	Ser	Val	Val	Asp	Trp 235	Asn	Thr	Phe	Val	Pro 240	
Ser	Glu	Thr	Ser	Thr 245	Thr	Glu	Lys	Ala	Ala 250	Thr	Asn	Ala	Met	Lys 255	Tyr	
Lys	Tyr	Cys	Val 260	Trp	Gln	Trp	Leu	Val 265	Gly	Lys	His	Ser	Gln 270	Val	Pro	
Trp	Ile	Asn 275	Gly	Gln	Lys	Lys	Pro 280	Leu	Tyr	Leu	Tyr	Gly 285	Ala	Phe	Leu	
Met	Asn 290	Pro	Leu	Ala	Lys	Ala 295	Thr	Lys	Thr	Thr	Leu 300	Asn	Gly	Lys	Glu	
Asn 305	Leu	Ala	Trp	Phe	Ile 310	Gly	Gly	Thr	Leu	Gly 315	Gly	Leu	Arg	Lys	Ala 320	
Gly	Asp	Trp	Ser	Ala 325	Thr	Val	Arg	Tyr	Glu 330	Tyr	Val	Glu	Ala	Leu 335	Ser	
Val	Pro	Glu	Ile 340	Asp	Val	Ser	Gly	Ile 345	Gly	Arg	Gly	Asn 350	Leu	Leu	Lys	
Phe	Trp	Phe 355	Ala	Gln	Ala	Ile	Ala 360	Ala	Asn	Tyr	Asp	Pro 365	Lys	Glu	Ala	
Asn	Gly 370	Phe	Thr	Asn	Tyr	Lys 375	Gly	Phe	Ser	Ala	Leu 380	Tyr	Met	Tyr	Gly	

Ile Thr Asp Ser Leu Ser Phe Arg Ala Tyr Gly Ala Tyr Ser Lys Pro
 385 390 395 400

Ala Asn Asp Lys Leu Gly Ser Asp Phe Thr Phe Arg Lys Phe Asp Leu
 405 410 415

Gly Ile Ile Ser Ala Phe
 420

<210> 45
 <211> 1596
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 45
 atgtttgggca aagaagaaga gtttacgtgt aaacaaaagc agtgtttgctc acattttggt 60
 accaatctga cgtccgatgt atttgcttta aaaaatcttc cagaagtcgt taaggagct 120
 ttatttttcta aatactcccg ttcagtttta ggtttgcgag cacttttggtt aaaagaattt 180
 ctatctaatag aagaggatgg agatgtttgt gacgaagcct atgacttcga aaccgatgta 240
 cagaaagctg cggactttta ccaaagggtt cttgataatt ttggggatga ttctgtagga 300
 gagcttggcg gagcccacct ggctatggaa aatgtctcta ttttggctgc taaagtttta 360
 gaggatgctc gaattggcgg atccccgcta gaaaagtcca caagatacgt ctatttcgat 420
 caaaaggtac ggggggagta tttatattac cgagacccta ttttgatgac ttcggccttt 480
 aaagacatgt ttttgggtac ttgtgatttt ttattcgata cctattctgc tttaatccct 540
 caagttcgtg cctatttttg aaaaactgtat cctaaagatt ctaaaacacc cgcactctgcc 600
 tatgccacat cattacgagc taaagtttta gattgtatac ggggacttct tcctgcggca 660
 actttgacaa atctaggatt tttcggtaac ggtaggtttt ggcaaaatct gattcacaag 720
 ttacaaggctc ataaccttgc agagttgcga cgtttaggag atgaatccct aacagagctt 780
 atgaaagtta ttccttcatt tgtaagtaga gccgagcctc atcatcacca tcatcaagct 840
 atgatgcaat atcgaagagc tttaaaagag cagctcaagg gacttgctga acaagcaaca 900
 tttagtgagg agatgtcttc ttcaccgagt gttcagttgg tatacggaga ccctgatggc 960
 atttataaag tagctgctgg atttcttttt ccttattcaa atcgttctct tacagatctc 1020

atagactatt gtaaaaaaat gcctcatgaa gatcttgtag agattttaga gagcagtgtt 1080
 tctgcaagag aaaaccgccg gcataagtct cctcgtgggt tagaatgcgt agaatttggc 1140
 tttgatatac ttgctgattt cgggtgcatac cgcgatttgc aacgacatcg gacgctgact 1200
 caagaacgac agttactctc tacacatcat ggatacaatt ttcctgtgga gcttctagat 1260
 actcctatgg aaaaatctta tcgagaagct atggagaggg cgaatgaaac ctataatgag 1320
 attgttcagg agttccctga ggaagctcag tatatgggtc ccatggctta caatatacgt 1380
 tggtttttcc atgtaaatgc tcgggctttg caatggattt gtgagttacg ctcacagcct 1440
 caaggctcatc aaaattaccg cactatagct acaggtttag tgcgagaggt tgtcaagttc 1500
 aatcctatgt acgaattatt tttcaaattt gtagattatt ctgacataga tttaggacgg 1560
 ttaaatacagg aaatgcgaaa agaaccaacg acctaa 1596

<210> 46
 <211> 531
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 46

Met Leu Gly Lys Glu Glu Glu Phe Thr Cys Lys Gln Lys Gln Cys Leu
 1 5 10 15

Ser His Phe Val Thr Asn Leu Thr Ser Asp Val Phe Ala Leu Lys Asn
 20 25 30

Leu Pro Glu Val Val Lys Gly Ala Leu Phe Ser Lys Tyr Ser Arg Ser
 35 40 45

Val Leu Gly Leu Arg Ala Leu Leu Leu Lys Glu Phe Leu Ser Asn Glu
 50 55 60

Glu Asp Gly Asp Val Cys Asp Glu Ala Tyr Asp Phe Glu Thr Asp Val
 65 70 75 80

Gln Lys Ala Ala Asp Phe Tyr Gln Arg Val Leu Asp Asn Phe Gly Asp
 85 90 95

-49-

Met	Ser	Ser	Ser	Pro	Ser	Val	Gln	Leu	Val	Tyr	Gly	Asp	Pro	Asp	Gly
305					310					315					320
Ile	Tyr	Lys	Val	Ala	Ala	Gly	Phe	Leu	Phe	Pro	Tyr	Ser	Asn	Arg	Ser
				325					330					335	
Leu	Thr	Asp	Leu	Ile	Asp	Tyr	Cys	Lys	Lys	Met	Pro	His	Glu	Asp	Leu
			340					345					350		
Val	Gln	Ile	Leu	Glu	Ser	Ser	Val	Ser	Ala	Arg	Glu	Asn	Arg	Arg	His
		355					360					365			
Lys	Ser	Pro	Arg	Gly	Leu	Glu	Cys	Val	Glu	Phe	Gly	Phe	Asp	Ile	Leu
	370					375					380				
Ala	Asp	Phe	Gly	Ala	Tyr	Arg	Asp	Leu	Gln	Arg	His	Arg	Thr	Leu	Thr
385					390					395					400
Gln	Glu	Arg	Gln	Leu	Leu	Ser	Thr	His	His	Gly	Tyr	Asn	Phe	Pro	Val
				405					410					415	
Glu	Leu	Leu	Asp	Thr	Pro	Met	Glu	Lys	Ser	Tyr	Arg	Glu	Ala	Met	Glu
			420					425					430		
Arg	Ala	Asn	Glu	Thr	Tyr	Asn	Glu	Ile	Val	Gln	Glu	Phe	Pro	Glu	Glu
		435					440					445			
Ala	Gln	Tyr	Met	Val	Pro	Met	Ala	Tyr	Asn	Ile	Arg	Trp	Phe	Phe	His
	450					455					460				
Val	Asn	Ala	Arg	Ala	Leu	Gln	Trp	Ile	Cys	Glu	Leu	Arg	Ser	Gln	Pro
465					470					475					480
Gln	Gly	His	Gln	Asn	Tyr	Arg	Thr	Ile	Ala	Thr	Gly	Leu	Val	Arg	Glu
				485					490					495	
Val	Val	Lys	Phe	Asn	Pro	Met	Tyr	Glu	Leu	Phe	Phe	Lys	Phe	Val	Asp
			500					505					510		

Tyr Ser Asp Ile Asp Leu Gly Arg Leu Asn Gln Glu Met Arg Lys Glu
515 520 525

Pro Thr Thr
530

<210> 47
<211> 1206
<212> DNA
<213> Chlamydia pneumoniae

<400> 47
atgttattgg taaggaaatg gttgcatact tgtttcaaatt attggattta ctttcttccg 60
gtggtaacgc tacttcttcc cctagtgtgt tacccttttc tgctcgattag tcaaaaaatt 120
tatggatact ttgttttttac tacaatttct tctttagggt gggttttttgc attgagacgt 180
agggaaaatc aattaaaaac agcagctgtt cagcttcttc aaacaaaaat tagaaaatta 240
acagaaaata atgaagggtt aagacaaatt cgagaatctc ttaaagaaca tcagcaagag 300
agtgtctaac tgcaaattca aagtcagaag cttaaaaaaca gcctatttca tcttcagggt 360
ttacttgtga aaactaaggg agaggggcaa aaattagaaa ctttggttact tcatagaaca 420
gaagagaatc gatgtttgaa aatgcaagta gattctttta ttcaggaatg cggagaaaaa 480
acagaggaag tacaaacttt aaatcgagag ttggctgaga ctttagccta ccagcaagct 540
ttaaatgacg agtatcaagc gaccttctct gagcaacgca atatgctgga taagcggcag 600
atctacattg gaaagctgga aaacaagggt caggatttaa tgtatgagat ccgtaacttg 660
cttcagttag agtcagacat agcagagaat attccttctc aagaatcgaa tgctgttacg 720
ggaaatattt ctttacaatt gtctagttag ttaaaaaaaaa ttgcttttaa ggctgaaaac 780
atagaggcag cctcttcttt aacagcatca cgttaccttc atacagatac gagtgtgcat 840
aactactctt tagagtgtcg ccagttattt gatagcttaa gagaagaaaa tctcgggatg 900
ctttttgtct atgctcgtca atcccaacgt gcggtttttg ctaatgctt atttaaaacg 960
tggaacgggt attgtgcaga agatttttta aaatttggtg gtgacatagt gatttctggg 1020
ggcaaacagt ggatggagga tcttcattcc tctagagaag aatgctctgg tagattagtg 1080
attaaaacga aatcacgagg tcatcttcct ttccgttatt gtttaatggc tttgaataaa 1140

ggccctcttt gctatcatgt tttgggggtt ctttatcctc tccataaaga agtgcttcag 1200
agttga 1206

<210> 48
<211> 401
<212> PRT
<213> *Chlamydia pneumoniae*

<400> 48

Met Leu Leu Val Arg Lys Trp Leu His Thr Cys Phe Lys Tyr Trp Ile
1 5 10 15

Tyr Phe Leu Pro Val Val Thr Leu Leu Leu Pro Leu Val Cys Tyr Pro
20 25 30

Phe Leu Ser Ile Ser Gln Lys Ile Tyr Gly Tyr Phe Val Phe Thr Thr
35 40 45

Ile Ser Ser Leu Gly Trp Phe Phe Ala Leu Arg Arg Arg Glu Asn Gln
50 55 60

Leu Lys Thr Ala Ala Val Gln Leu Leu Gln Thr Lys Ile Arg Lys Leu
65 70 75 80

Thr Glu Asn Asn Glu Gly Leu Arg Gln Ile Arg Glu Ser Leu Lys Glu
85 90 95

His Gln Gln Glu Ser Ala Gln Leu Gln Ile Gln Ser Gln Lys Leu Lys
100 105 110

Asn Ser Leu Phe His Leu Gln Gly Leu Leu Val Lys Thr Lys Gly Glu
115 120 125

Gly Gln Lys Leu Glu Thr Leu Leu Leu His Arg Thr Glu Glu Asn Arg
130 135 140

Cys Leu Lys Met Gln Val Asp Ser Leu Ile Gln Glu Cys Gly Glu Lys
145 150 155 160

Thr	Glu	Glu	Val	Gln	Thr	Leu	Asn	Arg	Glu	Leu	Ala	Glu	Thr	Leu	Ala	
				165					170					175		
Tyr	Gln	Gln	Ala	Leu	Asn	Asp	Glu	Tyr	Gln	Ala	Thr	Phe	Ser	Glu	Gln	
			180					185					190			
Arg	Asn	Met	Leu	Asp	Lys	Arg	Gln	Ile	Tyr	Ile	Gly	Lys	Leu	Glu	Asn	
		195					200					205				
Lys	Val	Gln	Asp	Leu	Met	Tyr	Glu	Ile	Arg	Asn	Leu	Leu	Gln	Leu	Glu	
	210					215					220					
Ser	Asp	Ile	Ala	Glu	Asn	Ile	Pro	Ser	Gln	Glu	Ser	Asn	Ala	Val	Thr	
225					230					235					240	
Gly	Asn	Ile	Ser	Leu	Gln	Leu	Ser	Ser	Glu	Leu	Lys	Lys	Ile	Ala	Phe	
				245					250					255		
Lys	Ala	Glu	Asn	Ile	Glu	Ala	Ala	Ser	Ser	Leu	Thr	Ala	Ser	Arg	Tyr	
			260					265					270			
Leu	His	Thr	Asp	Thr	Ser	Val	His	Asn	Tyr	Ser	Leu	Glu	Cys	Arg	Gln	
		275					280					285				
Leu	Phe	Asp	Ser	Leu	Arg	Glu	Glu	Asn	Leu	Gly	Met	Leu	Phe	Val	Tyr	
	290					295					300					
Ala	Arg	Gln	Ser	Gln	Arg	Ala	Val	Phe	Ala	Asn	Ala	Leu	Phe	Lys	Thr	
305					310					315					320	
Trp	Thr	Gly	Tyr	Cys	Ala	Glu	Asp	Phe	Leu	Lys	Phe	Gly	Ser	Asp	Ile	
				325					330					335		
Val	Ile	Ser	Gly	Gly	Lys	Gln	Trp	Met	Glu	Asp	Leu	His	Ser	Ser	Arg	
			340					345					350			
Glu	Glu	Cys	Ser	Gly	Arg	Leu	Val	Ile	Lys	Thr	Lys	Ser	Arg	Gly	His	
		355					360					365				

Leu Pro Phe Arg Tyr Cys Leu Met Ala Leu Asn Lys Gly Pro Leu Cys
 370 375 380

Tyr His Val Leu Gly Val Leu Tyr Pro Leu His Lys Glu Val Leu Gln
 385 390 395 400

Ser

<210> 49
 <211> 675
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 49
 atgacatcct ggatagaatt acttgataag caaattgaag atcaacatat gttaaagcac 60
 gaattttatc agcggttggtc tgaaggaaag ttagaaaaac aacaacttca agcttatgcc 120
 aaagattact atttacatat taaagcattt ccttgttacc tttcagcgct gcatgctcgc 180
 tgtgatgact tgcagattcg tagacaaatt cttgagaatc tcatggatga agaagctgga 240
 aatcctaadc acatagattt atggagacag tttgctttat ctcttggagt ttctgaagag 300
 gagcttgcca atcatgaatt cagtcaggct gctcaagata tggtagcgac atttcgccgc 360
 ttatgcgaca tgccacaact tgccgtgggt ttaggcgctc tctatactta tgagattcag 420
 attcctcaag tctgtgtaga gaaaatccgt ggtttgaaag aatattttgg agtttctgct 480
 cgaggctatg catactttac tgtacatcaa gaagctgata ttaaacadgc cagcgaagag 540
 aaagaaatgc tacaaacttt ggtaggcaga gagaatcctg atgctgtttt gcaaggatca 600
 caagaagttt tagatactct atggaacttt ttgagctctt ttattaattc aacggagcct 660
 tgttcttgta agtag 675

<210> 50
 <211> 224
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 50

Met Thr Ser Trp Ile Glu Leu Leu Asp Lys Gln Ile Glu Asp Gln His
 1 5 10 15

Met	Leu	Lys	His	Glu	Phe	Tyr	Gln	Arg	Trp	Ser	Glu	Gly	Lys	Leu	Glu
			20					25					30		
Lys	Gln	Gln	Leu	Gln	Ala	Tyr	Ala	Lys	Asp	Tyr	Tyr	Leu	His	Ile	Lys
		35					40					45			
Ala	Phe	Pro	Cys	Tyr	Leu	Ser	Ala	Leu	His	Ala	Arg	Cys	Asp	Asp	Leu
	50					55					60				
Gln	Ile	Arg	Arg	Gln	Ile	Leu	Glu	Asn	Leu	Met	Asp	Glu	Glu	Ala	Gly
65					70					75					80
Asn	Pro	Asn	His	Ile	Asp	Leu	Trp	Arg	Gln	Phe	Ala	Leu	Ser	Leu	Gly
				85					90					95	
Val	Ser	Glu	Glu	Glu	Leu	Ala	Asn	His	Glu	Phe	Ser	Gln	Ala	Ala	Gln
			100					105					110		
Asp	Met	Val	Ala	Thr	Phe	Arg	Arg	Leu	Cys	Asp	Met	Pro	Gln	Leu	Ala
		115					120					125			
Val	Gly	Leu	Gly	Ala	Leu	Tyr	Thr	Tyr	Glu	Ile	Gln	Ile	Pro	Gln	Val
	130					135					140				
Cys	Val	Glu	Lys	Ile	Arg	Gly	Leu	Lys	Glu	Tyr	Phe	Gly	Val	Ser	Ala
145					150					155					160
Arg	Gly	Tyr	Ala	Tyr	Phe	Thr	Val	His	Gln	Glu	Ala	Asp	Ile	Lys	His
				165					170					175	
Ala	Ser	Glu	Glu	Lys	Glu	Met	Leu	Gln	Thr	Leu	Val	Gly	Arg	Glu	Asn
			180					185					190		
Pro	Asp	Ala	Val	Leu	Gln	Gly	Ser	Gln	Glu	Val	Leu	Asp	Thr	Leu	Trp
		195					200					205			
Asn	Phe	Leu	Ser	Ser	Phe	Ile	Asn	Ser	Thr	Glu	Pro	Cys	Ser	Cys	Lys
	210					215					220				

<210> 51
 <211> 1287
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 51
 atggatataa aaaaactctt ttgcttattt ctatgttctt ctctaattgc catgagtcct 60
 atttatggga aaacaggtga ctatgagaaa ctcaccctta cagggatcaa tatcattgat 120
 agaaacggcc tgtcagaaac tatttgctct aaagagaagc taaagaaata caccaaggta 180
 gactttcttg ctccccagcc ctatcaaaaag gtcatgagga tgtataaaaa caaacgcgga 240
 gataacgttt cttgtttaac agcctatcac actaacgggc aaattaagca gtacctggag 300
 tgtctcaata atcgtgctta tggaagatat cgtgaatggc acgtcaacgg gaatatcaaa 360
 atccaagctg aggttatcgg aggtattgcg gatcttcac cctcagcaga gtctggctgg 420
 ctatttgatc aaactacatt tgcctataat gatgaaggta tcttagaagc cgctatcgtc 480
 tatgaaaaag ggctgctcga aggatcttcg gtgtattacc atactaatgg gaatatttgg 540
 aaagagtgtc cctatcataa gggagttcct caaggtaa at tcctgacata cacatcttcg 600
 gggaaactgc tcaaagaaca gaattaccaa caaggcaaaa gacacgggtc ttcgattcgc 660
 tacagcgaag attccgaaga agatgtttta gcctgggaag aatatcatga gggacgactc 720
 ctaaaagcag agtacttaga tcctcaaact cacgaaatct atgcgactat acacgaaggg 780
 aacggcattc aagcaatcta cggcaagtat gccgttatag aaactagggc attttaccga 840
 ggggaacctt atggaaaagt taccagattc gacaactccg gaacacagat tgtccaaacg 900
 tataaccttt tgcaaggcgc gaagcacgga gaagaatttt tcttttatcc tgagacaggg 960
 aaaccaagc tgcttcttaa ttggcatgaa ggaattttta atgggatagt aaaaacttgg 1020
 tatcccggag gaaccttaga aagttgtaaa gaactcgtaa ataacaaaaa atccgggtta 1080
 ctgaccattt actaccctga aggacagatc atggcgaccg aagagtatga taatgatctt 1140
 ctaattaaag gagagtactt ccgccctgga gaccgtcatc cctactctaa aatagatcgt 1200
 gggtgtggga ctgcagtatt tttctcgtcg gcgggaacta ttactaaaaa aatcccctat 1260
 caggacggca aacctttgct caactag 1287

<210> 52

<211> 428
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 52

Met Asp Ile Lys Lys Leu Phe Cys Leu Phe Leu Cys Ser Ser Leu Ile
 1 5 10 15

Ala Met Ser Pro Ile Tyr Gly Lys Thr Gly Asp Tyr Glu Lys Leu Thr
 20 25 30

Leu Thr Gly Ile Asn Ile Ile Asp Arg Asn Gly Leu Ser Glu Thr Ile
 35 40 45

Cys Ser Lys Glu Lys Leu Lys Lys Tyr Thr Lys Val Asp Phe Leu Ala
 50 55 60

Pro Gln Pro Tyr Gln Lys Val Met Arg Met Tyr Lys Asn Lys Arg Gly
 65 70 75 80

Asp Asn Val Ser Cys Leu Thr Ala Tyr His Thr Asn Gly Gln Ile Lys
 85 90 95

Gln Tyr Leu Glu Cys Leu Asn Asn Arg Ala Tyr Gly Arg Tyr Arg Glu
 100 105 110

Trp His Val Asn Gly Asn Ile Lys Ile Gln Ala Glu Val Ile Gly Gly
 115 120 125

Ile Ala Asp Leu His Pro Ser Ala Glu Ser Gly Trp Leu Phe Asp Gln
 130 135 140

Thr Thr Phe Ala Tyr Asn Asp Glu Gly Ile Leu Glu Ala Ala Ile Val
 145 150 155 160

Tyr Glu Lys Gly Leu Leu Glu Gly Ser Ser Val Tyr Tyr His Thr Asn
 165 170 175

Gly Asn Ile Trp Lys Glu Cys Pro Tyr His Lys Gly Val Pro Gln Gly
 180 185 190

Lys Phe Leu Thr Tyr Thr Ser Ser Gly Lys Leu Leu Lys Glu Gln Asn
195 200 205

Tyr Gln Gln Gly Lys Arg His Gly Leu Ser Ile Arg Tyr Ser Glu Asp
210 215 220

Ser Glu Glu Asp Val Leu Ala Trp Glu Glu Tyr His Glu Gly Arg Leu
225 230 235 240

Leu Lys Ala Glu Tyr Leu Asp Pro Gln Thr His Glu Ile Tyr Ala Thr
245 250 255

Ile His Glu Gly Asn Gly Ile Gln Ala Ile Tyr Gly Lys Tyr Ala Val
260 265 270

Ile Glu Thr Arg Ala Phe Tyr Arg Gly Glu Pro Tyr Gly Lys Val Thr
275 280 285

Arg Phe Asp Asn Ser Gly Thr Gln Ile Val Gln Thr Tyr Asn Leu Leu
290 295 300

Gln Gly Ala Lys His Gly Glu Glu Phe Phe Phe Tyr Pro Glu Thr Gly
305 310 315 320

Lys Pro Lys Leu Leu Leu Asn Trp His Glu Gly Ile Leu Asn Gly Ile
325 330 335

Val Lys Thr Trp Tyr Pro Gly Gly Thr Leu Glu Ser Cys Lys Glu Leu
340 345 350

Val Asn Asn Lys Lys Ser Gly Leu Leu Thr Ile Tyr Tyr Pro Glu Gly
355 360 365

Gln Ile Met Ala Thr Glu Glu Tyr Asp Asn Asp Leu Leu Ile Lys Gly
370 375 380

Glu Tyr Phe Arg Pro Gly Asp Arg His Pro Tyr Ser Lys Ile Asp Arg
385 390 395 400

Gly Cys Gly Thr Ala Val Phe Phe Ser Ser Ala Gly Thr Ile Thr Lys
405 410 415

Lys Ile Pro Tyr Gln Asp Gly Lys Pro Leu Leu Asn
420 425

<210> 53
<211> 795
<212> DNA
<213> Chlamydia pneumoniae

<400> 53
gtggaaaaac ttgagtttgt caccagcctt tcttctcctg atgatgattt gattactttc 60
aataaacagg gattgattgc aggcccagaa gaagaaaagg tagcgtttct tgtacgtagc 120
aatgctatgc tagatgcagg acccgaaacc cccgcgtcgt ttcctgaatc ttttaagggaa 180
caattcgata ttttccctga gtatgttgaa gtgctctact ctaatgaagg attagatgtc 240
tggaagcag gatgtacgtg gattctaaat aatgaagtga ccatccaact gcgtaaacad 300
caccggaaag cttcgcgatg gctaggaatg tattccagag atgaggtact cgctcacgaa 360
gccgtgcatg ctgtgagaat gaaatttcat gagcctgtct ttgaagaggt gttagcttat 420
caaacttctc gttgggggtg gagaaggttt ttcggtcctc tatttcgctc tccaggagag 480
agctacttgc tattattctt caccatttta ggtttaggaa tctccttatg gtatcctgcc 540
ggatatactga ttatgctggg tttaacctatg tatttttttga tgcgattgtg catggcgcag 600
agctattttgt atcggggccat gaaaaagatt cgtaaaatgc tcggagtacc tcccttatgg 660
gtgctgctaa ggctgacgga taaggaaata aaaatgtttg ctaaagagcc tattcctggt 720
ttggaacact atgctagaaa acgaaagctt gaaaatgtcc gttggaagca aatttatcaa 780
tcctactttg tttaa 795

<210> 54
<211> 264
<212> PRT
<213> Chlamydia pneumoniae

<400> 54

Val Glu Lys Leu Glu Phe Val Thr Ser Leu Ser Ser Pro Asp Asp Asp
1 5 10 15

Leu	Ile	Thr	Phe	Asn	Lys	Gln	Gly	Leu	Ile	Ala	Gly	Pro	Glu	Glu	Glu
			20					25					30		
Lys	Val	Ala	Phe	Leu	Val	Arg	Ser	Asn	Ala	Met	Leu	Asp	Ala	Gly	Pro
		35					40					45			
Glu	Thr	Pro	Ala	Ser	Phe	Pro	Glu	Ser	Leu	Arg	Glu	Gln	Phe	Asp	Ile
	50					55					60				
Phe	Pro	Glu	Tyr	Val	Glu	Val	Leu	Tyr	Ser	Asn	Glu	Gly	Leu	Asp	Val
65					70					75					80
Trp	Glu	Ala	Gly	Cys	Thr	Trp	Ile	Leu	Asn	Asn	Glu	Val	Thr	Ile	Gln
				85					90					95	
Leu	Arg	Lys	His	His	Arg	Lys	Ala	Ser	Arg	Trp	Leu	Gly	Met	Tyr	Ser
			100					105					110		
Arg	Asp	Glu	Val	Leu	Ala	His	Glu	Ala	Val	His	Ala	Val	Arg	Met	Lys
		115					120					125			
Phe	His	Glu	Pro	Val	Phe	Glu	Glu	Val	Leu	Ala	Tyr	Gln	Thr	Ser	Arg
	130					135					140				
Trp	Gly	Trp	Arg	Arg	Phe	Phe	Gly	Pro	Leu	Phe	Arg	Ser	Pro	Gly	Glu
145					150					155					160
Ser	Tyr	Leu	Leu	Leu	Phe	Phe	Thr	Ile	Leu	Gly	Leu	Gly	Ile	Ser	Leu
				165					170					175	
Trp	Tyr	Pro	Ala	Gly	Ile	Leu	Ile	Met	Leu	Val	Leu	Pro	Met	Tyr	Phe
			180					185					190		
Leu	Met	Arg	Leu	Cys	Met	Ala	Gln	Ser	Tyr	Leu	Tyr	Arg	Ala	Met	Lys
		195					200					205			
Lys	Ile	Arg	Lys	Met	Leu	Gly	Val	Pro	Pro	Leu	Trp	Val	Leu	Leu	Arg
	210					215					220				

Leu Thr Asp Lys Glu Ile Lys Met Phe Ala Lys Glu Pro Ile Pro Val
 225 230 235 240

Leu Glu His Tyr Ala Arg Lys Arg Lys Leu Glu Asn Val Arg Trp Lys
 245 250 255

Gln Ile Tyr Gln Ser Tyr Phe Val
 260

<210> 55
 <211> 234
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 55
 atgaatgaag gtatccactc tgtctgtttt caaaaaacac ctcggcttac tgcgaagtcc 60
 gtagtgagta tggagatgct cttaactact caacagcttc cttccgcaga agggatgccc 120
 tcggttgcta atttggaagc ggatttttta cgagcagaag ctctgtagc agaaatgcga 180
 gaaattcgtg gttgcttgga gcaatctttg cgaacactag tccctagtga gtag 234

<210> 56
 <211> 77
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 56

Met Asn Glu Gly Ile His Ser Val Cys Phe Gln Lys Thr Pro Arg Leu
 1 5 10 15

Thr Ala Lys Ser Val Val Ser Met Glu Met Leu Leu Thr Thr Gln Gln
 20 25 30

Leu Pro Ser Ala Glu Gly Met Pro Ser Val Ala Asn Leu Glu Ala Asp
 35 40 45

Phe Leu Arg Ala Glu Ala Leu Leu Ala Glu Met Arg Glu Ile Arg Gly
 50 55 60

Cys Leu Glu Gln Ser Leu Arg Thr Leu Val Pro Ser Glu
 65 70 75

<210> 57
 <211> 1815
 <212> DNA
 <213> *Chlamydia pneumoniae*

<400> 57
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 gtacagggtcc tccatacccg tgctacgaac ttaagtatag aattcgaaaa aaaactgacg 180
 atacacaagc ttttcctcga tagacttgcc aacacattag ccttaaaaatc ctatgcatct 240
 ccttctgcag agccctatgc acaggcatac aatgagatga tggcactctc caatacagac 300
 ttttccttat gccttataga tccctttgat ggatctgtaa ggacgaaaaa tcctggagac 360
 cctttcattc gctatctaaa acagcatcct gaaatgaaga aaaagctatc cgcagctgta 420
 gggaaagcct ttttattgac cattccaggc aaaccacttt tacattatct tattctagtt 480
 gaagatgtcg catcttgga ttctacaacg acttcaggac tgcttgtaag tttctatccc 540
 atgtcttttt tacagaaaga tttattccaa tccttacaca tcaccaaagg aaatatctgc 600
 cttgtaaata agtatggcga ggtcctcttc tgtgctcagg acagtgaatc ttcttttgta 660
 ttttctctag atctccctaa tttaccgcaa ttccaagcaa gaagcccctc tgccatagaa 720
 attgagaaag cttctggaat tcttggtggg gagaacctaa tcacagtga tatcaacaag 780
 aaacgctacc taggattggc actgaataaa attcctatcc aaggaccta cactctatct 840
 ttagttccag tttctgatct catccaatcc gccttgaaag ttctctcaa tatttgtttt 900
 ttctatgtac ttgctttcct cctcatgtgg tggattttct ctaagatcaa caccaaactt 960
 aacaagcctc ttcaagaact gaccttctgt atggaagctg cctggcgagg aaaccataac 1020
 gtgagggttg aaccccagcc ttacggttat gaattcaatg aactaggaaa tattttcaat 1080
 tgcactctcc tactcttatt gaattccatt gagaaagcag atatcgatta ccattcaggc 1140
 gaaaaattac aaaaagaatt agggatttta tottcactac aaagtgcgtt actaagtccg 1200
 gatttcccta cgttccctaa agttaccttt agttcccaac atctccggag aaggcaactt 1260
 tccggtcatt ttaatgggtg gacagttcaa gatggtggcg ataccctttt agggatcata 1320
 gggctcgctg gcgatattgg tcttccttcc tatctctatg ctttatccgc acggagtctt 1380

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agcttctcaa aaacaacaga aggcaatgag gctgtagttg ctatgacttt cattaaatat 1500
gtagaaaaag atcgatctct agagctcctc tcgttaagcg agggagctcc taccatgttt 1560
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ggagatcggt tgatctgcct cactggagga gaagacatcc tcaagtactt ttctcagctt 1680
cctattgaag agctcttaaa agatccttta aaccctctaa atacagagaa tcttattgat 1740
tctctaacca tgatgttaaa caacgaaacc gaacattctg cagatggaac tctgaccatc 1800
ctttcatttt cataa 1815

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<210> 58
<211> 604
<212> PRT
<213> Chlamydia pneumoniae

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<400> 58

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Met Lys His Thr Phe Thr Lys Arg Val Leu Phe Phe Phe Phe Leu Val
1          5          10          15

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```

Ile Pro Ile Pro Leu Leu Leu Asn Leu Met Val Val Gly Phe Phe Ser
          20          25          30

```

```

Phe Ser Ala Ala Lys Ala Asn Leu Val Gln Val Leu His Thr Arg Ala
          35          40          45

```

```

Thr Asn Leu Ser Ile Glu Phe Glu Lys Lys Leu Thr Ile His Lys Leu
          50          55          60

```

```

Phe Leu Asp Arg Leu Ala Asn Thr Leu Ala Leu Lys Ser Tyr Ala Ser
65          70          75          80

```

```

Pro Ser Ala Glu Pro Tyr Ala Gln Ala Tyr Asn Glu Met Met Ala Leu
          85          90          95

```

```

Ser Asn Thr Asp Phe Ser Leu Cys Leu Ile Asp Pro Phe Asp Gly Ser
          100          105          110

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Val	Arg	Thr	Lys	Asn	Pro	Gly	Asp	Pro	Phe	Ile	Arg	Tyr	Leu	Lys	Gln
		115					120					125			
His	Pro	Glu	Met	Lys	Lys	Lys	Leu	Ser	Ala	Ala	Val	Gly	Lys	Ala	Phe
	130					135					140				
Leu	Leu	Thr	Ile	Pro	Gly	Lys	Pro	Leu	Leu	His	Tyr	Leu	Ile	Leu	Val
145					150					155					160
Glu	Asp	Val	Ala	Ser	Trp	Asp	Ser	Thr	Thr	Thr	Ser	Gly	Leu	Leu	Val
				165					170					175	
Ser	Phe	Tyr	Pro	Met	Ser	Phe	Leu	Gln	Lys	Asp	Leu	Phe	Gln	Ser	Leu
			180					185					190		
His	Ile	Thr	Lys	Gly	Asn	Ile	Cys	Leu	Val	Asn	Lys	Tyr	Gly	Glu	Val
		195					200					205			
Leu	Phe	Cys	Ala	Gln	Asp	Ser	Glu	Ser	Ser	Phe	Val	Phe	Ser	Leu	Asp
	210					215					220				
Leu	Pro	Asn	Leu	Pro	Gln	Phe	Gln	Ala	Arg	Ser	Pro	Ser	Ala	Ile	Glu
225					230					235					240
Ile	Glu	Lys	Ala	Ser	Gly	Ile	Leu	Gly	Gly	Glu	Asn	Leu	Ile	Thr	Val
				245					250					255	
Ser	Ile	Asn	Lys	Lys	Arg	Tyr	Leu	Gly	Leu	Val	Leu	Asn	Lys	Ile	Pro
			260					265					270		
Ile	Gln	Gly	Thr	Tyr	Thr	Leu	Ser	Leu	Val	Pro	Val	Ser	Asp	Leu	Ile
		275					280					285			
Gln	Ser	Ala	Leu	Lys	Val	Pro	Leu	Asn	Ile	Cys	Phe	Phe	Tyr	Val	Leu
	290					295					300				
Ala	Phe	Leu	Leu	Met	Trp	Trp	Ile	Phe	Ser	Lys	Ile	Asn	Thr	Lys	Leu
305					310					315					320

Asn	Lys	Pro	Leu	Gln	Glu	Leu	Thr	Phe	Cys	Met	Glu	Ala	Ala	Trp	Arg
				325					330					335	
Gly	Asn	His	Asn	Val	Arg	Phe	Glu	Pro	Gln	Pro	Tyr	Gly	Tyr	Glu	Phe
			340					345					350		
Asn	Glu	Leu	Gly	Asn	Ile	Phe	Asn	Cys	Thr	Leu	Leu	Leu	Leu	Leu	Asn
		355					360					365			
Ser	Ile	Glu	Lys	Ala	Asp	Ile	Asp	Tyr	His	Ser	Gly	Glu	Lys	Leu	Gln
	370					375					380				
Lys	Glu	Leu	Gly	Ile	Leu	Ser	Ser	Leu	Gln	Ser	Ala	Leu	Leu	Ser	Pro
385					390					395					400
Asp	Phe	Pro	Thr	Phe	Pro	Lys	Val	Thr	Phe	Ser	Ser	Gln	His	Leu	Arg
				405					410					415	
Arg	Arg	Gln	Leu	Ser	Gly	His	Phe	Asn	Gly	Trp	Thr	Val	Gln	Asp	Gly
			420					425					430		
Gly	Asp	Thr	Leu	Leu	Gly	Ile	Ile	Gly	Leu	Ala	Gly	Asp	Ile	Gly	Leu
		435					440					445			
Pro	Ser	Tyr	Leu	Tyr	Ala	Leu	Ser	Ala	Arg	Ser	Leu	Phe	Leu	Ala	Tyr
	450					455					460				
Ala	Ser	Ser	Asp	Val	Ser	Leu	Gln	Lys	Ile	Ser	Lys	Asp	Thr	Ala	Asp
465					470					475					480
Ser	Phe	Ser	Lys	Thr	Thr	Glu	Gly	Asn	Glu	Ala	Val	Val	Ala	Met	Thr
				485					490					495	
Phe	Ile	Lys	Tyr	Val	Glu	Lys	Asp	Arg	Ser	Leu	Glu	Leu	Leu	Ser	Leu
			500					505					510		
Ser	Glu	Gly	Ala	Pro	Thr	Met	Phe	Leu	Gln	Arg	Gly	Glu	Ser	Phe	Val
		515					520					525			

Arg Leu Pro Leu Glu Thr His Gln Ala Leu Gln Pro Gly Asp Arg Leu
530 535 540

Ile Cys Leu Thr Gly Gly Glu Asp Ile Leu Lys Tyr Phe Ser Gln Leu
545 550 555 560

Pro Ile Glu Glu Leu Leu Lys Asp Pro Leu Asn Pro Leu Asn Thr Glu
565 570 575

Asn Leu Ile Asp Ser Leu Thr Met Met Leu Asn Asn Glu Thr Glu His
580 585 590

Ser Ala Asp Gly Thr Leu Thr Ile Leu Ser Phe Ser
595 600

<210> 59
<211> 1170
<212> DNA
<213> *Chlamydia pneumoniae*

<400> 59
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gaagaatcgt atcatccttc tgtagctaca actgtagatt atgtagatgc caccgacactt 120
tcccgcacatc ttacagtctt aaaagatgtg ataaaagaag ctcgaaactt agatttaggg 180
aaggcattcc tgacatctat gaaacagggt tttataaata cgggtacgga acttgccatt 240
atacaagcat ctctggcaga tcagagtagt cgcgagtcgc gtaagaagga agagaagatc 300
ttccatcagc acttaggaaa ggcagcccca caagcggcaa cagcaacttc aggagtgcag 360
cctactgcgg atcctgttgc tgataagatg cctttacaat ctgcatttgc ctatgttctc 420
cttgataagt acattcctgc tcaagaggaa gccctttatg ctcttggaag ggagttaaac 480
ctatcaggat atgcgcaaaa tttatttagt cctcttttag atatgattaa gâgctttaac 540
tctgctccta tcaactacaa tttaggatcg tacatatctc agacgagtgg cactgcgaat 600
ttcgcgtatg gttatgagat gattttatcg cgctataaca acgaagtctc tcaatgtcgc 660
ctggacatag caagtacagt aaaagctaaa gctgcgttag cgaacatgtc ggcttctggt 720
aaagcaaagt tgagtctgac tgatgcacag aagaaacaaa ttgaggatat cattgccagc 780

tatacgaaat ctttagatgt gattcataca cagttaactg atgtgatgac aaatttagca	840
tccataacct ttgttcctgg tttaaataaa tatgatcctt cgtatcgcat tgttggtggg	900
gatttatcta tcattgcctt gcagaatgac gagaaggtac ttgtcgatgg taaggtggat	960
atcacgactg ctgtgaatga aggaggccta cttaatttct tcactacagt ccttacggat	1020
gtgcagaatt atggagactt agctcaaacg caacagctga tgttggactt agagcttaag	1080
gcgatgcaac aacaatggag tttagttatct gcatctttga aattattgaa tgggatgtat	1140
accacagtaa tttctggatt taaaaactaa	1170

<210> 60
 <211> 389
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 60

Met	His	Pro	Lys	Ile	Glu	Lys	Arg	Asn	Ser	Leu	Pro	Leu	Thr	Ala	Val	1	5	10	15
Ala	Pro	Val	Phe	Glu	Glu	Ser	Tyr	His	Pro	Ser	Val	Ala	Thr	Thr	Val	20	25	30	
Asp	Tyr	Val	Asp	Ala	Thr	Thr	Leu	Ser	Arg	His	Leu	Thr	Val	Leu	Lys	35	40	45	
Asp	Val	Ile	Lys	Glu	Ala	Arg	Asn	Leu	Asp	Leu	Gly	Lys	Ala	Phe	Leu	50	55	60	
Thr	Ser	Met	Lys	Gln	Gly	Phe	Ile	Asn	Thr	Gly	Thr	Glu	Leu	Ala	Ile	65	70	75	80
Ile	Gln	Ala	Ser	Leu	Ala	Asp	Gln	Ser	Ser	Arg	Glu	Ser	Arg	Lys	Lys	85	90	95	
Glu	Glu	Lys	Ile	Phe	His	Gln	His	Leu	Gly	Lys	Ala	Ala	Pro	Gln	Ala	100	105	110	
Ala	Thr	Ala	Thr	Ser	Gly	Val	Gln	Pro	Thr	Ala	Asp	Pro	Val	Ala	Asp	115	120	125	

Lys	Met	Pro	Leu	Gln	Ser	Ala	Phe	Ala	Tyr	Val	Leu	Leu	Asp	Lys	Tyr	130	135	140	
Ile	Pro	Ala	Gln	Glu	Glu	Ala	Leu	Tyr	Ala	Leu	Gly	Arg	Glu	Leu	Asn	145	150	155	160
Leu	Ser	Gly	Tyr	Ala	Gln	Asn	Leu	Phe	Ser	Pro	Leu	Leu	Asp	Met	Ile	165	170	175	
Lys	Ser	Phe	Asn	Ser	Ala	Pro	Ile	Asn	Tyr	Asn	Leu	Gly	Ser	Tyr	Ile	180	185	190	
Ser	Gln	Thr	Ser	Gly	Thr	Ala	Asn	Phe	Ala	Tyr	Gly	Tyr	Glu	Met	Ile	195	200	205	
Leu	Ser	Arg	Tyr	Asn	Asn	Glu	Val	Ser	Gln	Cys	Arg	Leu	Asp	Ile	Ala	210	215	220	
Ser	Thr	Val	Lys	Ala	Lys	Ala	Ala	Leu	Ala	Asn	Met	Ser	Ala	Ser	Val	225	230	235	240
Lys	Ala	Asn	Val	Ser	Leu	Thr	Asp	Ala	Gln	Lys	Lys	Gln	Ile	Glu	Asp	245	250	255	
Ile	Ile	Ala	Ser	Tyr	Thr	Lys	Ser	Leu	Asp	Val	Ile	His	Thr	Gln	Leu	260	265	270	
Thr	Asp	Val	Met	Thr	Asn	Leu	Ala	Ser	Ile	Thr	Phe	Val	Pro	Gly	Leu	275	280	285	
Asn	Lys	Tyr	Asp	Pro	Ser	Tyr	Arg	Ile	Val	Gly	Gly	Asp	Leu	Ser	Ile	290	295	300	
Ile	Ala	Leu	Gln	Asn	Asp	Glu	Lys	Val	Leu	Val	Asp	Gly	Lys	Val	Asp	305	310	315	320
Ile	Thr	Thr	Ala	Val	Asn	Glu	Gly	Gly	Leu	Leu	Asn	Phe	Phe	Thr	Thr	325	330	335	

Val Leu Thr Asp Val Gln Asn Tyr Gly Asp Leu Ala Gln Thr Gln Gln
 340 345 350

Leu Met Leu Asp Leu Glu Leu Lys Ala Met Gln Gln Gln Trp Ser Leu
 355 360 365

Val Ser Ala Ser Leu Lys Leu Leu Asn Gly Met Tyr Thr Thr Val Ile
 370 375 380

Ser Gly Phe Lys Asn
 385

<210> 61
 <211> 537
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 61
 gtgacaacac cacaatctcc tggttcgctt tctcaatctc accttcctca tccacatgat 60
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 ctccattcgt tagttcatct ctttcgcaag ctatccattc acctacttag tgaagtcgaa 180
 aaaacagtac aacagctaaa acccgacctc ctagaactgg ctctttctcat ctgtgaaaaa 240
 tttctctata agaagctaga aaatcctcaa gaactggccc tgctcctctc taccgcgctc 300
 caaagacata cgacattaag atctctgact cccatcaaag tattttctcca tcccaggaggat 360
 ctcaaaacac ttacagattg gatctccacc cacgaactcc ccatgattaa gcatgctgag 420
 tttttccctg acacttcttg tagacgatca ggattcaaaa tagaaacccc taacggaatt 480
 ctgagacaag aaatcagcga agaactagac catctacttt ctgttttgac agcatga 537

<210> 62
 <211> 178
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 62

Val Thr Thr Pro Gln Ser Pro Gly Ser Leu Ser Gln Ser His Leu Pro
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His Pro His Asp Pro Trp Asp Thr Glu Pro Thr Ser Leu Pro Glu Asp
 20 25 30

Pro Asn Asp Lys Ala Ser Gln Glu Leu His Ser Leu Val His Leu Phe
 35 40 45

Arg Lys Leu Ser Ile His Leu Leu Ser Glu Val Glu Lys Thr Val Gln
 50 55 60

Gln Leu Lys Pro Asp Leu Leu Glu Leu Ala Leu Leu Ile Cys Glu Lys
 65 70 75 80

Phe Leu Tyr Lys Lys Leu Glu Asn Pro Gln Glu Leu Ala Leu Leu Leu
 85 90 95

Ser Thr Ala Leu Gln Arg His Thr Thr Leu Arg Ser Leu Thr Pro Ile
 100 105 110

Lys Val Phe Leu His Pro Glu Asp Leu Lys Thr Leu Thr Asp Trp Ile
 115 120 125

Ser Thr His Glu Leu Pro Met Ile Lys His Ala Glu Phe Phe Pro Asp
 130 135 140

Thr Ser Cys Arg Arg Ser Gly Phe Lys Ile Glu Thr Pro Asn Gly Ile
 145 150 155 160

Leu Arg Gln Glu Ile Ser Glu Glu Leu Asp His Leu Leu Ser Val Leu
 165 170 175

Thr Ala

<210> 63
 <211> 798
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 63
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60

gattcttgta agattcttat tgatttagga gtgagcaagc aagtcgtcac tcgggaatta	120
ctctctatga atatcgatcc tgaagatatt caggcaattt ttgttacgca cgaacattct	180
gatcatatct ccgggattaa aagttttgtt aaggcgtata acactcccat tgtttgcaac	240
ttggagacgg ctctgtgcttt atgccatcta ctagatagcc atccagaatt caaaatattt	300
tccacaggggt cttcattttg ttttcaagat ctctgaagtac agacgttcaa tgtacctcat	360
gatgctgtag atcctgtggc ttttattttt cattatcgcg aagagaaact gggtttttgc	420
acagatttag gttgggtcac ctcttggatc acacatgaac tctatgattg tgattactta	480
ttaattgagt ccaatcattc ccctgaattg gtacgtcaat ctcaacgtcc tgatgtttac	540
aaaaagcgtg tattgagtaa attaggtcat atttctaacc aagagtgtgg tcagctttta	600
caaaagatta tcaactccgaa gttaaagaag ttatatcttg ctcacctgtc taccgagtgt	660
aacactgcgg agctagcact ttctacagta tctgaatcga tagcttctat cacttctata	720
gcaccagaaa ttgcattagc gcagggcatt acatctccaa tatacttttc tcgtcttgag	780
gttgcatgtc cacggtaa	798

<210> 64
 <211> 265
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 64

Met	Gln	Gly	Phe	Phe	Pro	Leu	Ala	Ser	Gly	Ser	Lys	Gly	Asn	Ser	Ala
1				5					10					15	

Tyr	Leu	Gly	Thr	Asp	Ser	Cys	Lys	Ile	Leu	Ile	Asp	Leu	Gly	Val	Ser
			20					25					30		

Lys	Gln	Val	Val	Thr	Arg	Glu	Leu	Leu	Ser	Met	Asn	Ile	Asp	Pro	Glu
		35					40					45			

Asp	Ile	Gln	Ala	Ile	Phe	Val	Thr	His	Glu	His	Ser	Asp	His	Ile	Ser
	50					55					60				

Gly	Ile	Lys	Ser	Phe	Val	Lys	Ala	Tyr	Asn	Thr	Pro	Ile	Val	Cys	Asn
65					70					75					80

Leu Glu Thr Ala Arg Ala Leu Cys His Leu Leu Asp Ser His Pro Glu
85 90 95

Phe Lys Ile Phe Ser Thr Gly Ser Ser Phe Cys Phe Gln Asp Leu Glu
100 105 110

Val Gln Thr Phe Asn Val Pro His Asp Ala Val Asp Pro Val Ala Phe
115 120 125

Ile Phe His Tyr Arg Glu Glu Lys Leu Gly Phe Cys Thr Asp Leu Gly
130 135 140

Trp Val Thr Ser Trp Ile Thr His Glu Leu Tyr Asp Cys Asp Tyr Leu
145 150 155 160

Leu Ile Glu Ser Asn His Ser Pro Glu Leu Val Arg Gln Ser Gln Arg
165 170 175

Pro Asp Val Tyr Lys Lys Arg Val Leu Ser Lys Leu Gly His Ile Ser
180 185 190

Asn Gln Glu Cys Gly Gln Leu Leu Gln Lys Ile Ile Thr Pro Lys Leu
195 200 205

Lys Lys Leu Tyr Leu Ala His Leu Ser Thr Glu Cys Asn Thr Ala Glu
210 215 220

Leu Ala Leu Ser Thr Val Ser Glu Ser Ile Ala Ser Ile Thr Ser Ile
225 230 235 240

Ala Pro Glu Ile Ala Leu Ala Gln Gly Ile Thr Ser Pro Ile Tyr Phe
245 250 255

Ser Arg Leu Glu Val Ala Cys Pro Arg
260 265

<210> 65
<211> 429
<212> DNA

<213> Chlamydia pneumoniae

<400> 65

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gaggatattg ggaaaattat tggaagaaga gggaacacaa tacatgcgct aagaacgatt      180
cttagacgtg tatgttctag attaaaaaag aaagtgcaga tagatttggt tcagcctgaa      240
aatggaactg atgtgattgc tgatcaagat tacatctgtg ataatgactc ttctaactct      300
actgaagata ctttcggcga gtctgacacc tgctgcagtg gacactgtca ttacgacgaa      360
gatcttaatc aagaagaaca agaagaaggc aatatgcatc attcttgcca atgtagtaac      420
caccattaa                                         429
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<210> 66

<211> 142

<212> PRT

<213> Chlamydia pneumoniae

<400> 66

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Met Glu Glu Phe Val Ala Tyr Ile Val Lys Asn Leu Val Thr Asn Pro
1          5          10          15

Glu Ala Val Glu Ile Arg Ser Ile Glu Asp Glu Asp Asn Glu Ser Ile
          20          25          30

Lys Leu Glu Ile Arg Val Ala Ala Glu Asp Ile Gly Lys Ile Ile Gly
          35          40          45

Arg Arg Gly Asn Thr Ile His Ala Leu Arg Thr Ile Leu Arg Arg Val
          50          55          60

Cys Ser Arg Leu Lys Lys Lys Val Gln Ile Asp Leu Val Gln Pro Glu
65          70          75          80

Asn Gly Thr Asp Val Ile Ala Asp Gln Asp Tyr Ile Cys Asp Asn Asp
          85          90          95

Ser Ser Asn Ser Thr Glu Asp Thr Phe Gly Glu Ser Asp Thr Cys Cys
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100

105

110

Ser Gly His Cys His Tyr Asp Glu Asp Leu Asn Gln Glu Glu Gln Glu
 115 120 125

Glu Gly Asn Met His His Ser Cys Glu Cys Ser Asn His His
 130 135 140

<210> 67
 <211> 471
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 67
 atggaaaaac aaaattttaa attagatgtc aaagagattg agtttcctga aacggtattc 60
 agccgtgata tcgaaactcg tgttatccaa gtaattatTT tgcattgttt agcaaaaatt 120
 aacggtgttt ccttcctcgg aggaaatcta atagacgctc tgttcggtag agatatcgaa 180
 agaatgaagg ggatctatgt agaacaggat tcaaaaaatc atctgggtcaa agttcgtgtc 240
 gaagtgaacg tagattacgg tgtttctata ccagagaaaa cagaagaaat ccagggatgc 300
 attgttttcag aaatttcaga atatacagga cttcatgtgg ccgctgtcca cgtgatcatt 360
 aaaggggttg cacaaccaa agatcgtatt gatgaagaaa ttgaagagga agtctctgtt 420
 caagatcttc cttcacctga agacttctta cttgagaatt ctgaagggtg g 471

<210> 68
 <211> 156
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 68

Met Glu Lys Gln Asn Leu Lys Leu Asp Val Lys Glu Ile Glu Phe Pro
 1 5 10 15

Glu Thr Val Phe Ser Arg Asp Ile Glu Thr Arg Val Ile Gln Val Ile
 20 25 30

Ile Leu His Cys Leu Ala Lys Ile Asn Gly Val Ser Leu Leu Gly Gly
 35 40 45

Asn Leu Ile Asp Ala Leu Phe Gly Arg Asp Ile Glu Arg Met Lys Gly
50 55 60

Ile Tyr Val Glu Gln Asp Ser Lys Asn His Leu Val Lys Val Arg Val
65 70 75 80

Glu Val Asn Val Asp Tyr Gly Val Ser Ile Pro Glu Lys Thr Glu Glu
85 90 95

Ile Gln Gly Cys Ile Val Ser Glu Ile Ser Glu Tyr Thr Gly Leu His
100 105 110

Val Ala Ala Val His Val Ile Ile Lys Gly Leu Thr Gln Pro Lys Asp
115 120 125

Arg Ile Asp Glu Glu Ile Glu Glu Glu Val Ser Val Gln Asp Leu Pro
130 135 140

Ser Pro Glu Asp Phe Leu Leu Glu Asn Ser Glu Gly
145 150 155

<210> 69
<211> 231
<212> DNA
<213> Chlamydia pneumoniae

<400> 69
gtgaaaaata aaattgttac attattagat cagctctacg aggatcagga gtcacgactt 60
cagaagtttag gagaggaaat tgttcctaac ctcaactcctg aagatttatt gcaacctatg 120
gattttcctc aattggaagg gaatccggca tttcgttttg aagaggggtgt cttatcagga 180
attggtgagg tgcgagctgc gatttttagcg gcgctctctc aagagaacta g 231

<210> 70
<211> 76
<212> PRT
<213> Chlamydia pneumoniae

<400> 70

Val Lys Asn Lys Ile Val Thr Leu Leu Asp Gln Leu Tyr Glu Asp Gln
1 5 10 15

Glu Ser Arg Leu Gln Lys Leu Gly Glu Glu Ile Val Pro Asn Leu Thr
 20 25 30

Pro Glu Asp Leu Leu Gln Pro Met Asp Phe Pro Gln Leu Glu Gly Asn
 35 40 45

Pro Ala Phe Arg Phe Glu Glu Gly Val Leu Ser Gly Ile Gly Glu Val
 50 55 60

Arg Ala Ala Ile Leu Ala Ala Leu Ser Gln Glu Asn
 65 70 75

<210> 71
 <211> 522
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 71
 atgtggatca tagaccctct atcagcaaaa aaacctctac aagcagccat aaatgttcct 60
 ggcaactccaa ttacaggagg acctaataca gcaactgctg acgatatcat tgcaaaattc 120
 tccaaagact caaaccctct gattgttact gtttactacg tctatcaatc cgtattagtt 180
 gctcaagata acctctccat cattgcccga gaactccaag caaactcttc agctcaaacc 240
 tacctaaata accaagaagc cttataccaa tacgtcagta ttcctaaaaa taaactgaac 300
 gataactcct ctagctatct acaaaacatc caatccgata accaagcgat aggagcttct 360
 cggcaagcta tccaaaacca aatttccagt ttaggaaacg cggctcaggt aatctccagt 420
 aacttgaaca caaataataa catcatccaa caatccttac aggtaggaca ggctcttatt 480
 cagaccttct ctcaaattgt aagcctaatt gctaacatct aa 522

<210> 72
 <211> 173
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 72

Met Trp Ile Ile Asp Pro Leu Ser Ala Lys Lys Pro Leu Gln Ala Ala
 1 5 10 15

Ile Asn Val Pro Gly Thr Pro Ile Thr Gly Gly Pro Asn Thr Ala Thr
 20 25 30

Ala Asp Asp Ile Ile Ala Lys Phe Ser Lys Asp Ser Asn Pro Leu Ile
 35 40 45

Val Thr Val Tyr Tyr Val Tyr Gln Ser Val Leu Val Ala Gln Asp Asn
 50 55 60

Leu Ser Ile Ile Ala Gln Glu Leu Gln Ala Asn Ser Ser Ala Gln Thr
 65 70 75 80

Tyr Leu Asn Asn Gln Glu Ala Leu Tyr Gln Tyr Val Ser Ile Pro Lys
 85 90 95

Asn Lys Leu Asn Asp Asn Ser Ser Ser Tyr Leu Gln Asn Ile Gln Ser
 100 105 110

Asp Asn Gln Ala Ile Gly Ala Ser Arg Gln Ala Ile Gln Asn Gln Ile
 115 120 125

Ser Ser Leu Gly Asn Ala Ala Gln Val Ile Ser Ser Asn Leu Asn Thr
 130 135 140

Asn Asn Asn Ile Ile Gln Gln Ser Leu Gln Val Gly Gln Ala Leu Ile
 145 150 155 160

Gln Thr Phe Ser Gln Ile Val Ser Leu Ile Ala Asn Ile
 165 170

<210> 73

<211> 222

<212> DNA

<213> Chlamydia pneumoniae

<400> 73

ttgtggtata aatctttagc tggagaggag aaggacgtgt ctgggaatga gtgcaatgac 60

tatccagaag tttttaaaga tgacgtaagt gcttacgtat tggtaacttg tggtcagatg 120

tcttctgaag gcaaaatcca ggtggagatg acttatgaag gagatccagc tgtgatcagc 180

tattttattaa caaaagcacg agactcttta gatgagtctt aa

222

<210> 74
<211> 73
<212> PRT
<213> Chlamydia pneumoniae

<400> 74

Leu Trp Tyr Lys Ser Leu Ala Gly Glu Glu Lys Asp Val Ser Gly Asn
1 5 10 15

Glu Cys Asn Asp Tyr Pro Glu Val Phe Lys Asp Asp Val Ser Ala Tyr
20 25 30

Val Leu Val Thr Cys Gly Gln Met Ser Ser Glu Gly Lys Ile Gln Val
35 40 45

Glu Met Thr Tyr Glu Gly Asp Pro Ala Val Ile Ser Tyr Leu Leu Thr
50 55 60

Lys Ala Arg Asp Ser Leu Asp Glu Ser
65 70

<210> 75
<211> 1494
<212> DNA
<213> Chlamydia pneumoniae

<400> 75

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gtagatggaa atgccactga agaagctggt gttgctgcag aagtacaagt agctctccct	120
gcaggagagc aatatgcat gctgagagca acttccgagc tatgttttgg gattttaaca	180
caatcggaat gtgctttgac acaagcactg cctcccaagg aaaaaccatt acaagaagag	240
caatttctag taaaaaatgg catattaatg cgatcaacat ctctgccgaa cctaaaacca	300
ggacaatcgc agcagactag cttagcttca catagaaatc ccttagcgca gcaatccaca	360
tcttcgaatt ccacagggaa agcatcaaca gaaacaacct cgtcttcctt tccgtttttc	420
tcatgcaaag ctctgaagg agactccagt gtggacaaaa cgttcacagt gtctgtccaa	480

acaccaaaaag cacaagagca acaagaagca agcgcttctc aaagccaagc acaatttcat	540
gtaaggtcct attctagcag caccataaaa gaacatagtg ctaaagaaaa agtctcacaa	600
agcaccaagt cggcagagac acaaaaacac acacaaacta agtctgatgc gactcttagt	660
ccgatgtcac tctatagcac cttacataag gaagtacctc aagcactatc ctctacaaaa	720
agccaacaaa aagatgaaga acatcgagat caaaggcaac aagaaggata cgagcaagaa	780
caagagcaag aagaaggcaa gaaaaagaca ccatggtgca ctgtggaatc tctacaacag	840
acttcaagtt cgaaccaggt gtacgagtct tatactccta ttattcctga tcctattgtg	900
gagtttgctt tgtctgaatc acagctaagc gtgcttgca gaaagcgtgt gaccaacctt	960
gatgtcctta gaatatgtac agagctaata aagttgatgc tcaaaagtag agctaacgac	1020
acaatgacac gtcttgaaga aagagagctc atggaaaggg aagctcatga attggcggcg	1080
agttattcac gtcaagctaa atacgcccgc tggctaggga tcgcgacagc aacgttaggt	1140
attttaggag cgattgctcc tatggttgga gaaatttccg gagatagcat tttagggttt	1200
gtccaaagga tttctggaag attcaaagat gcgactgcga aaaccttctt taaaggaata	1260
ggaaaagttt tcacctctct atcacaactt actgaagccg cttctaaagt acatgagtta	1320
tcagagagtg ctgtacgagc tgttgctgag tacagaaaag aagtcttcag aatgagacag	1380
gatgaagtca cacgtaccat tgaggaagtc aaagacaact ggaaaagtat ggacaatttc	1440
cttctgaaca ttctccaaac agaacatgac gctgctcgca gtctgtatca gtag	1494

<210> 76
 <211> 497
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 76

Met	Thr	Val	Ser	Tyr	Gln	Ser	Ile	Ser	Thr	Pro	Pro	Pro	Glu	Gly	Glu
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Phe	Asp	Ile	Phe	Val	Asp	Gly	Asn	Ala	Thr	Glu	Glu	Ala	Val	Val	Ala
			20					25					30		

Ala	Glu	Val	Gln	Val	Ala	Leu	Pro	Ala	Gly	Glu	Gln	Tyr	Ala	Met	Leu
		35					40					45			

Arg	Ala	Thr	Ser	Glu	Leu	Cys	Phe	Gly	Ile	Leu	Thr	Gln	Ser	Glu	Cys
50						55					60				
Ala	Leu	Thr	Gln	Ala	Leu	Pro	Pro	Lys	Glu	Lys	Pro	Leu	Gln	Glu	Glu
65					70					75					80
Gln	Phe	Leu	Val	Lys	Asn	Gly	Ile	Leu	Met	Arg	Ser	Thr	Ser	Leu	Pro
				85					90					95	
Asn	Leu	Lys	Pro	Gly	Gln	Ser	Gln	Gln	Thr	Ser	Leu	Ala	Ser	His	Arg
			100					105					110		
Asn	Pro	Leu	Ala	Gln	Gln	Ser	Thr	Ser	Ser	Asn	Ser	Thr	Gly	Lys	Ala
		115					120					125			
Ser	Thr	Glu	Thr	Thr	Ser	Ser	Ser	Phe	Pro	Phe	Phe	Ser	Cys	Lys	Ala
	130					135					140				
Pro	Glu	Gly	Asp	Ser	Ser	Val	Asp	Lys	Thr	Phe	Thr	Val	Ser	Val	Gln
145					150					155					160
Thr	Pro	Lys	Ala	Gln	Glu	Gln	Gln	Glu	Ala	Ser	Ala	Ser	Gln	Ser	Gln
				165					170					175	
Ala	Gln	Phe	His	Val	Arg	Ser	Tyr	Ser	Ser	Ser	Thr	Ile	Lys	Glu	His
			180					185					190		
Ser	Ala	Lys	Glu	Lys	Val	Ser	Gln	Ser	Thr	Lys	Ser	Ala	Glu	Thr	Gln
		195					200					205			
Lys	His	Thr	Gln	Thr	Lys	Ser	Asp	Ala	Thr	Leu	Ser	Pro	Met	Ser	Leu
	210					215					220				
Tyr	Ser	Thr	Leu	His	Lys	Glu	Val	Pro	Gln	Ala	Leu	Ser	Ser	Thr	Lys
225					230					235					240
Ser	Gln	Gln	Lys	Asp	Glu	Glu	His	Arg	Asp	Gln	Arg	Gln	Gln	Glu	Gly
				245					250					255	

Tyr Glu Gln Glu Gln Glu Gln Glu Glu Gly Lys Lys Lys Thr Pro Trp
 260 265 270

Cys Thr Val Glu Ser Leu Gln Gln Thr Ser Ser Ser Asn Gln Val Tyr
 275 280 285

Glu Ser Tyr Thr Pro Ile Ile Pro Asp Pro Ile Val Glu Phe Ala Leu
 290 295 300

Ser Glu Ser Gln Leu Ser Val Leu Ala Gly Lys Arg Val Thr Asn Leu
 305 310 315 320

Asp Val Leu Arg Ile Cys Thr Glu Leu Met Lys Leu Met Leu Lys Ser
 325 330 335

Arg Ala Asn Asp Thr Met Thr Arg Leu Glu Glu Arg Glu Leu Met Glu
 340 345 350

Arg Glu Ala His Glu Leu Ala Ala Ser Tyr Ser Arg Gln Ala Lys Tyr
 355 360 365

Ala Arg Trp Leu Gly Ile Ala Thr Ala Thr Leu Gly Ile Leu Gly Ala
 370 375 380

Ile Ala Pro Met Val Gly Glu Ile Ser Gly Asp Ser Ile Leu Gly Phe
 385 390 395 400

Val Gln Arg Ile Ser Gly Arg Phe Lys Asp Ala Thr Ala Lys Thr Phe
 405 410 415

Phe Lys Gly Ile Gly Lys Val Phe Thr Ser Leu Ser Gln Leu Thr Glu
 420 425 430

Ala Ala Ser Lys Val His Glu Leu Ser Glu Ser Ala Val Arg Ala Val
 435 440 445

Ala Glu Tyr Arg Lys Glu Val Phe Arg Met Arg Gln Asp Glu Val Thr
 450 455 460

Arg Thr Ile Glu Glu Val Lys Asp Asn Trp Lys Ser Met Asp Asn Phe
 465 470 475 480

Leu Leu Asn Ile Leu Gln Thr Glu His Asp Ala Ala Arg Ser Leu Tyr
 485 490 495

Gln

<210> 77
 <211> 1533
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 77
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 gatgctccta ggtcacaaga atcttcgggt cctaagatta gctattctat cactgtagcg 120
 cctcaagaag ctcaaaagtc tcttcccaag tttttcactc agaaatttca gtcacaatgt 180
 aagtctgagc ctctatcac ccatcataaa acattcatta ttgcaacacc aagagagaga 240
 atcttgcggt tcggcagctc tttcgaatct caacttcaca acacatcgca agctcaaact 300
 tcatctcctt ggaatctttt ttctcaaaaa aatagcacag aagcaagtaa agctctgatg 360
 caagaactga ctatgccaaa atctccggag aaaacttcag agaaggctct agataaaaac 420
 ctgagttcta aacaagaagg ctcttgcaaa aattttgata cgctgcacct acaacaacat 480
 ctcaagttgt ttggaaccgt tgactcgcta tattctcaaa gcctagatag tgaacagcaa 540
 gaactcctcc aatcacgaag agaagagcgc agtgaaacct atgcaaacca gcagagttct 600
 gagaaaaaaaa tagaaaccaa agttcagata aaagatctct gtaaagacct cttttctcag 660
 gatcaggatt ccaatcaaaa acaaaagaaa tcccctttcc aacaagatac atcacgtaaa 720
 aatagaatag ccaaagcagc acaagctggt cctgtaattc ctctccaag cataggagtg 780
 ttacattga gctatctact cacaaaacaa gggattcttt cagacttttc ttcgtatgga 840
 tgccacaaag attccgtgga gtcgacacaa cgagagctcg atgctctaca tgaaaagaga 900
 atcgagacta tcaaggctcag catcgagaaa gaaaaacgag aaagattatg gggatctctt 960
 tctgacatta tcggttggct agctccgttt gtttctatag ggatcggcat tgttgctatc 1020

ttgagtggag gcggtatctt tgcttttgca ggtttttttg cagggctaata ttctcttggt 1080
 atcaagtgtt tagagaaact aaagttctgg gattggctag aaaaacatct gcctataaaa 1140
 aatgaagaac taagacgaaa aattataacc ataatccagt gggtcgtcta tttaaccctt 1200
 gtcattctct ccatatgcac attaaaagta gaaaatttag gtttttcccc tattatagaa 1260
 ggagctatta aaggaatcca acccgcgata gaatctacga tggctgcttt aagatgcgct 1320
 atactgtttt ctcaagcaga aatctataaa ctcaaaggaa aactcactaa aatccaactc 1380
 gacattgaat tgaaaagttt tgatagggac gatcattacg aacgttctca agaactttta 1440
 gataacatgg agagttcttt cgaagccctt tcaagaatct taaattacat gcgtgaacta 1500
 gatcaagtgt atctccactc cttaagagga taa 1533

<210> 78
 <211> 510
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 78

Met Ser Ser Trp Leu Ser Gln Ala Ser Glu Val Leu Leu Asn Gln Asp
1 5 10 15

Pro Tyr Ile Pro Asp Ala Pro Arg Ser Gln Glu Ser Ser Val Pro Lys
20 25 30

Ile Ser Tyr Ser Ile Thr Val Ala Pro Gln Glu Ala Gln Lys Ser Leu
35 40 45

Pro Lys Phe Phe Thr Gln Lys Phe Gln Ser Gln Cys Lys Ser Glu Pro
50 55 60

Pro Ile Thr His His Lys Thr Phe Ile Ile Ala Thr Pro Arg Glu Arg
65 70 75 80

Ile Leu Arg Phe Gly Ser Ser Phe Glu Ser Gln Leu His Asn Thr Ser
85 90 95

Gln Ala Gln Thr Ser Ser Pro Trp Asn Leu Phe Ser Gln Lys Asn Ser
100 105 110

Thr	Glu	Ala	Ser	Lys	Ala	Leu	Met	Gln	Glu	Leu	Thr	Met	Pro	Lys	Ser			
		115					120					125						
Pro	Glu	Lys	Thr	Ser	Glu	Lys	Ala	Leu	Asp	Lys	Asn	Leu	Ser	Ser	Lys			
	130					135					140							
Gln	Glu	Gly	Ser	Cys	Lys	Asn	Phe	Asp	Thr	Leu	His	Leu	Gln	Gln	His			
145					150					155					160			
Leu	Lys	Leu	Phe	Gly	Thr	Val	Asp	Ser	Leu	Tyr	Ser	Gln	Ser	Leu	Asp			
				165					170					175				
Ser	Glu	Gln	Gln	Glu	Leu	Leu	Gln	Ser	Arg	Arg	Glu	Glu	Arg	Ser	Glu			
			180					185					190					
Thr	Tyr	Ala	Asn	Gln	Gln	Ser	Ser	Glu	Lys	Lys	Ile	Glu	Thr	Lys	Val			
		195					200					205						
Gln	Ile	Lys	Asp	Leu	Cys	Lys	Asp	Leu	Phe	Ser	Gln	Asp	Gln	Asp	Ser			
	210					215					220							
Asn	Gln	Lys	Gln	Lys	Lys	Ser	Pro	Phe	Gln	Gln	Asp	Thr	Ser	Arg	Lys			
225					230					235					240			
Asn	Arg	Ile	Ala	Lys	Ala	Ala	Gln	Ala	Val	Pro	Val	Ile	Pro	Pro	Pro			
				245					250					255				
Ser	Ile	Gly	Val	Phe	Thr	Leu	Ser	Tyr	Leu	Leu	Thr	Lys	Gln	Gly	Ile			
			260					265					270					
Leu	Ser	Asp	Phe	Ser	Ser	Tyr	Gly	Cys	His	Lys	Asp	Ser	Val	Glu	Ser			
		275					280					285						
Thr	Gln	Arg	Glu	Leu	Asp	Ala	Leu	His	Glu	Lys	Arg	Ile	Glu	Thr	Ile			
	290					295					300							
Lys	Val	Ser	Ile	Glu	Lys	Glu	Lys	Arg	Glu	Arg	Leu	Trp	Gly	Ser	Leu			
305					310					315					320			

Ser Asp Ile Ile Gly Trp Leu Ala Pro Phe Val Ser Ile Gly Ile Gly
325 330 335

Ile Val Ala Ile Leu Ser Gly Gly Gly Ile Phe Ala Phe Ala Gly Phe
340 345 350

Phe Ala Gly Leu Ile Ser Leu Val Ile Lys Cys Leu Glu Lys Leu Lys
355 360 365

Phe Trp Asp Trp Leu Glu Lys His Leu Pro Ile Lys Asn Glu Glu Leu
370 375 380

Arg Arg Lys Ile Ile Thr Ile Ile Gln Trp Val Val Tyr Leu Thr Pro
385 390 395 400

Val Ile Leu Ser Ile Cys Thr Leu Lys Val Glu Asn Leu Gly Phe Ser
405 410 415

Pro Ile Ile Glu Gly Ala Ile Lys Gly Ile Gln Pro Ala Ile Glu Ser
420 425 430

Thr Met Ala Ala Leu Arg Cys Ala Ile Leu Phe Ser Gln Ala Glu Ile
435 440 445

Tyr Lys Leu Lys Gly Lys Leu Thr Lys Ile Gln Leu Asp Ile Glu Leu
450 455 460

Lys Ser Phe Asp Arg Asp Asp His Tyr Glu Arg Ser Gln Glu Leu Leu
465 470 475 480

Asp Asn Met Glu Ser Ser Phe Glu Ala Leu Ser Arg Ile Leu Asn Tyr
485 490 495

Met Arg Glu Leu Asp Gln Val Tyr Leu His Ser Leu Arg Gly
500 505 510

<210> 79

<211> 588

<212> DNA

<213> Chlamydia pneumoniae

<400> 79
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gatgacggta tgccccaca accctttgaa actttctgct acgattctgc tcttctacaa 120
gcaaaaatcg aaaattttta ttcgtccct tatacatctg tacttcctaa agagctcttt 180
gggaatatcg ttctgtaga tacctgtgta aaatctttca aacacggcgc tgtccttgaa 240
gtaatcatgg cgggtcgtgg tgctgctctc tctgacggaa cccatgcat cgccaccgga 300
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tatgttgaat tcttccctac atggataaat gacgaaattg cagaaacca tgctaaaatg 420
tggttgaaaa aatccctaca acacgaactt gacctacgct ctatagcaaa gcatagcgaa 480
ttccaattct tccataatta catcaacatc aaacaaaaat tcggtttttg cttaactgca 540
ttaggattcc taaatttcga aaatgctgaa ccagctaagg taaattaa 588

<210> 80
<211> 195
<212> PRT
<213> *Chlamydia pneumoniae*

<400> 80

Met Ala Tyr Gly Thr Arg Tyr Pro Thr Leu Ala Phe His Thr Gly Gly
1 5 10 15

Ile Gly Glu Ser Asp Asp Gly Met Pro Pro Gln Pro Phe Glu Thr Phe
20 25 30

Cys Tyr Asp Ser Ala Leu Leu Gln Ala Lys Ile Glu Asn Phe Asn Ile
35 40 45

Val Pro Tyr Thr Ser Val Leu Pro Lys Glu Leu Phe Gly Asn Ile Val
50 55 60

Pro Val Asp Thr Cys Val Lys Ser Phe Lys His Gly Ala Val Leu Glu
65 70 75 80

Val Ile Met Ala Gly Arg Gly Ala Ala Leu Ser Asp Gly Thr His Ala
85 90 95

Ile Ala Thr Gly Ile Gly Ile Cys Trp Gly Lys Asp Lys Asn Gly Glu
100 105 110

Leu Ile Gly Gly Trp Ala Ala Glu Tyr Val Glu Phe Phe Pro Thr Trp
115 120 125

Ile Asn Asp Glu Ile Ala Glu Thr His Ala Lys Met Trp Leu Lys Lys
130 135 140

Ser Leu Gln His Glu Leu Asp Leu Arg Ser Ile Ala Lys His Ser Glu
145 150 155 160

Phe Gln Phe Phe His Asn Tyr Ile Asn Ile Lys Gln Lys Phe Gly Phe
165 170 175

Cys Leu Thr Ala Leu Gly Phe Leu Asn Phe Glu Asn Ala Glu Pro Ala
180 185 190

Lys Val Asn
195

<210> 81
<211> 1092
<212> DNA
<213> Chlamydia pneumoniae

<400> 81
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ggaatgcacg gaggatatgc cgctgaggtt ccagtgactt catctgggta tgagaatctt 120
ttagaatcta aggaacagga tccttcaggt ctagcgatcc acgatcgcat tttgtttaag 180
gtagatgaag agaatgtagt gactgcctta gatgtgatcc ataaattaaa cttactatct 240
tataattcgt atcctcatct tatagattct ttccctgcac gatcccagta ctatactgcg 300
atgtggcctg tggttcttga atctgtgatt gatgagtttt tgatgggtggc agatgccaag 360
gcaaagagaa tcgctacaga tcccaccgca gtgaatcaag aaatcgaaga gatgttcgga 420
agagatctct ctcccttgta tgcgcatctt gaaatgagtc ccaacgatat ttttaatgtg 480
atcgatcgca ctttgacagc acaaaggggtg atgggtatga tgggtgcgctc taaggtaatg 540

ttgaaggtga ctccagggaa aattcgagaa tattaccgaa agctagaaga agaagcctct 600
 aggaaagtca tctggaagta tcgtgtgttg acgattaaag ccaacacaga atccttggtc 660
 agccagattg ctgataaagt gcgtgctcgt ctaaatagaag cgaaaacctg ggataaagat 720
 cgtttaactg ctcttgtgat ctctcaggga gggcaactcg tctgctccga agagttttct 780
 cgagagaata gtgagctctc ccaaagccat aagcaagagc tggacttgat tggctatcct 840
 aaagagctct gtgggttgcc taaggcacat aagtcaggat ataaactcta tatgttggtta 900
 gacaaaacct caggttctat agagccttta gatgttatgg agtccaagat caaacagcat 960
 ctttttgctt tagaagctga gagtgtagag aaacaatata aagacagatt acgcaagcgc 1020
 tacggctatg atgcttctat gattgcgaaa cttctttctg aagaagctcc acctctattt 1080
 tccttattat ag 1092

<210> 82
 <211> 363
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 82

Met Lys Leu Tyr Gln Thr Leu Arg Gly Ile Val Leu Val Ser Thr Gly
 1 5 10 15

Cys Ile Phe Leu Gly Met His Gly Gly Tyr Ala Ala Glu Val Pro Val
 20 25 30

Thr Ser Ser Gly Tyr Glu Asn Leu Leu Glu Ser Lys Glu Gln Asp Pro
 35 40 45

Ser Gly Leu Ala Ile His Asp Arg Ile Leu Phe Lys Val Asp Glu Glu
 50 55 60

Asn Val Val Thr Ala Leu Asp Val Ile His Lys Leu Asn Leu Leu Phe
 65 70 75 80

Tyr Asn Ser Tyr Pro His Leu Ile Asp Ser Phe Pro Ala Arg Ser Gln
 85 90 95

Tyr Tyr Thr Ala Met Trp Pro Val Val Leu Glu Ser Val Ile Asp Glu
 100 105 110

Phe Leu Met Val Ala Asp Ala Lys Ala Lys Arg Ile Ala Thr Asp Pro
 115 120 125

Thr Ala Val Asn Gln Glu Ile Glu Glu Met Phe Gly Arg Asp Leu Ser
 130 135 140

Pro Leu Tyr Ala His Phe Glu Met Ser Pro Asn Asp Ile Phe Asn Val
 145 150 155 160

Ile Asp Arg Thr Leu Thr Ala Gln Arg Val Met Gly Met Met Val Arg
 165 170 175

Ser Lys Val Met Leu Lys Val Thr Pro Gly Lys Ile Arg Glu Tyr Tyr
 180 185 190

Arg Lys Leu Glu Glu Glu Ala Ser Arg Lys Val Ile Trp Lys Tyr Arg
 195 200 205

Val Leu Thr Ile Lys Ala Asn Thr Glu Ser Leu Ala Ser Gln Ile Ala
 210 215 220

Asp Lys Val Arg Ala Arg Leu Asn Glu Ala Lys Thr Trp Asp Lys Asp
 225 230 235 240

Arg Leu Thr Ala Leu Val Ile Ser Gln Gly Gly Gln Leu Val Cys Ser
 245 250 255

Glu Glu Phe Ser Arg Glu Asn Ser Glu Leu Ser Gln Ser His Lys Gln
 260 265 270

Glu Leu Asp Leu Ile Gly Tyr Pro Lys Glu Leu Cys Gly Leu Pro Lys
 275 280 285

Ala His Lys Ser Gly Tyr Lys Leu Tyr Met Leu Leu Asp Lys Thr Ser
 290 295 300

Gly Ser Ile Glu Pro Leu Asp Val Met Glu Ser Lys Ile Lys Gln His
 305 310 315 320

Leu Phe Ala Leu Glu Ala Glu Ser Val Glu Lys Gln Tyr Lys Asp Arg
 325 330 335

Leu Arg Lys Arg Tyr Gly Tyr Asp Ala Ser Met Ile Ala Lys Leu Leu
 340 345 350

Ser Glu Glu Ala Pro Pro Leu Phe Ser Leu Leu
 355 360

<210> 83
 <211> 2076
 <212> DNA
 <213> Chlamydia trachomatis

<400> 83
 atgacgctct ttcatttctca tcatgatgcc gtctctccag acagctacct atgttcttcc 60
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 tatttccttg gattccaatt accctctcat tgcatacacc ttaatttaaa gagctctcta 180
 gctcaattag gaatagatgc ctcccttctt cactgcgaat tgagcaaaaa tcaacatcga 240
 gcacatatac atgctcaatt taccggtcat ggccccattg ctgaatctat gctagccctt 300
 ctccaaccag gagatcgtgt agcaaaacta tttgctgcag acgatcgcag actgggtccga 360
 tctccagatt acctcgaaag catgctgaaa aatacagata aagctggcca tcctttgctc 420
 tgttttggga aaaaattaga acacttgatt tcttttgatg tggtagatga tcgccttgtc 480
 gtctcccttc ctaccctgcc gggagttggt cgttatgatt cggatattta tggactcctt 540
 cctcttattc aaaaatcact cagtaatccc aaactcagca ttcgtcactt tttagctctg 600
 taccaacaga ttgtggaagg gcaacatgtc tcttgcgga accatattct tctgatcaaa 660
 acagaaccgc tgcacatccg cactgtattt gctcgcgtgg taaatcaact cctccctcaa 720
 ggtctctccc acacttctgc caatattttg gaaccaacca ctcgagaatc cgggggatatc 780
 tttgaatfff ttgggaaccc ttctgcacag atagaaagaa ttcctttaga atttttcact 840
 atcgaaccct ataaagaaca ttcttacttc tgtaatcggg atttattaca aaccatctta 900

caatcagaaa gcgaaatcaa aaaaatattc gaaacagcgc ccaaagaacc tgtcaaagct	960
gccacctatt tatcaaaagg cagtgaaatc tcttcctgc acacagactc ttggctcaca	1020
ggatccgcag ctgcctatca atatagtgag caagcagata aaaacgagta cactcatgct	1080
caaccttgct atcctttctt agaagcaatg gaaatgggcc tgatcaatag cgaaggagcc	1140
ttactcactc gttatttccc ttcagctagc ttaaaaggaa tgttgatttc ctaccatgtg	1200
cgccactatc tcaaacaaat ctactttcaa gttccctctt atacacatgg aaactatttc	1260
tctcataatg acagagggtt gctattagat ctgcagcaag cagatattga tgttttctgg	1320
gcagatgaag aaagcggccg tgtgttgcaa tatacaaaac gacgcgataa gaatagcggc	1380
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ggctctcgtc tccttgagaa taattttctct gctcagctcc ataccctcct agcgggctta	1500
cagcaagcag cacatactct cggcattcct ggattctcaa agcctacccc acttgcagtc	1560
atcacccggag gcggcactgg agttatggcc acaggaaatc gtgtagctaa agaactagga	1620
atcctatctt gtggaaccgt tcttgattta gaagcttctc cagcacaaat cgaccaacct	1680
accaatgaat tcttagatgc taaaatgaca taccgcctac ctcaacttat agaaaggcaa	1740
gaacactttt atgcagacct tcctatcctt gtagttggcg gtgtaggaac cgatttcgaa	1800
ctctacctag aacttgtcta tctcaaaaca ggagctaaac caccgactcc cattttccta	1860
attggaccta ttgaatactg gaaagaaaaa gtggcccacg cctacgagat caacctcaaa	1920
gcaggaacca tccgtggatc cgaatggatc agcaactgcc tatattgtat cacttctccg	1980
gaagctggaa ttgccgtatt cgaacaattc ctagctggag aactccctat aggatacgac	2040
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<210> 84

<211> 691

<212> PRT

<213> Chlamydia trachomatis

<400> 84

Met	Thr	Leu	Phe	His	Ser	His	Asp	Ala	Val	Ser	Pro	Asp	Ser	Tyr.
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Leu Cys Ser Ser Leu Gln Leu Val Gly Thr Gly Val Tyr Glu Gly Glu
 20 25 30

Ile Glu Ile Gln Asn Ile Pro Ser Tyr Phe Leu Gly Phe Gln Leu Pro
 35 40 45

Ser His Cys Ile His Leu Asn Leu Lys Ser Ser Leu Ala Gln Leu Gly
 50 55 60

Ile Asp Ala Ser Leu Leu His Cys Glu Leu Ser Lys Asn Gln His Arg
 65 70 75 80

Ala His Ile His Ala Gln Phe Thr Gly His Gly Pro Ile Ala Glu Ser
 85 90 95

Met Leu Ala Leu Leu Gln Pro Gly Asp Arg Val Ala Lys Leu Phe Ala
 100 105 110

Ala Asp Asp Arg Arg Leu Val Arg Ser Pro Asp Tyr Leu Glu Ser Met
 115 120 125

Leu Lys Asn Thr Asp Lys Ala Gly His Pro Leu Leu Cys Phe Gly Lys
 130 135 140

Lys Leu Glu His Leu Ile Ser Phe Asp Val Val Asp Asp Arg Leu Val
 145 150 155 160

Val Ser Leu Pro Thr Leu Pro Gly Val Val Arg Tyr Asp Ser Asp Ile
 165 170 175

Tyr Gly Leu Leu Pro Leu Ile Gln Lys Ser Leu Ser Asn Pro Lys Leu
 180 185 190

Ser Ile Arg His Phe Leu Ala Leu Tyr Gln Gln Ile Val Glu Gly Gln
 195 200 205

His Val Ser Cys Gly Asn His Ile Leu Leu Ile Lys Thr Glu Pro Leu
 210 215 220

His 225	Ile	Arg	Thr	Val	Phe 230	Ala	Arg	Val	Val	Asn 235	Gln	Leu	Leu	Pro	Gln 240
Gly	Leu	Ser	His	Thr 245	Ser	Ala	Asn	Ile	Leu 250	Glu	Pro	Thr	Thr	Arg 255	Glu
Ser	Gly	Asp	Ile 260	Phe	Glu	Phe	Phe	Gly 265	Asn	Pro	Ser	Ala	Gln 270	Ile	Glu
Arg	Ile	Pro 275	Leu	Glu	Phe	Phe	Thr 280	Ile	Glu	Pro	Tyr	Lys 285	Glu	His	Ser
Tyr 290	Phe	Cys	Asn	Arg	Asp	Leu 295	Leu	Gln	Thr	Ile	Leu 300	Gln	Ser	Glu	Ser
Glu 305	Ile	Lys	Lys	Ile	Phe 310	Glu	Thr	Ala	Pro	Lys 315	Glu	Pro	Val	Lys	Ala 320
Ala	Thr	Tyr	Leu	Ser 325	Lys	Gly	Ser	Glu	Ile 330	Ser	Ser	Leu	His	Thr 335	Asp
Ser	Trp	Leu	Thr 340	Gly	Ser	Ala	Ala	Ala 345	Tyr	Gln	Tyr	Ser	Glu 350	Gln	Ala
Asp	Lys	Asn 355	Glu	Tyr	Thr	His	Ala 360	Gln	Pro	Cys	Tyr	Pro 365	Phe	Leu	Glu
Ala 370	Met	Glu	Met	Gly	Leu	Ile 375	Asn	Ser	Glu	Gly	Ala 380	Leu	Leu	Thr	Arg
Tyr 385	Phe	Pro	Ser	Ala	Ser 390	Leu	Lys	Gly	Met	Leu 395	Ile	Ser	Tyr	His	Val 400
Arg	His	Tyr	Leu	Lys 405	Gln	Ile	Tyr	Phe	Gln 410	Val	Pro	Ser	Tyr	Thr 415	His
Gly	Asn	Tyr	Phe 420	Ser	His	Asn	Asp	Arg 425	Gly	Leu	Leu	Leu	Asp 430	Leu	Gln

Ala Gly Thr Ile Arg Gly Ser Glu Trp Ile Ser Asn Cys Leu Tyr Cys
645 650 655

Ile Thr Ser Pro Glu Ala Gly Ile Ala Val Phe Glu Gln Phe Leu Ala
660 665 670

Gly Glu Leu Pro Ile Gly Tyr Asp Tyr Pro Pro Ala Pro Asp Gly Leu
675 680 685

Val Ile Val
690

<210> 85
<211> 966
<212> DNA
<213> Chlamydia trachomatis

<400> 85
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caaaaggatc ctatgttaat gaaggagact ttccgtaata actacgggat cattgtctct 120
aagcaagaat ggaacaaacg tggatgcatg ggctccatca ctagagtatt caaagatgga 180
actacaacct tagaagttta tgcgcaagggt gctttacatg gggaagtcac acgaacgttt 240
cctcactcta ctaccctggc cgttatagaa acttatgatc agggaaggct tctttctaag 300
aagaccttct tcccaaattgc tttgcctgct aaagaagaag ttaccacga agatgggtct 360
ttctccctaa cacgttggcc tgacaataac aactctgaca caatcacaga cccctgcttt 420
gtagaaaaaa cttatggggg aagagtattg gaaggtcatt acacctcttt taatggaaaa 480
tactcttcaa caatccttaa cggcgaggga gttcgctcta ctttttcttc ggatagtatc 540
ttgttgacag aagagtcggt taatgatggc gtaatgggtca aaaaaacgac attttactcg 600
actcgagaac ccgaaaccgt cactcattat gtcaatgggt accctcacgg agttcggttt 660
acctatcttc ctggtgggat tccaaatacg attgaagaat ggcgatatgg acatcaagac 720
ggccttaciaa tcttatttaa aaatgggtgt aagattgctg aagtccatt tgtacgcgga 780
gcaaaaaatg gaatcgaact ccgatacaat gaacaagaga atatcgctga agagatttct 840
tggcagcaca acatcttgca tggagtcctg aaaatccatg cggcgggggt atgcaaattc 900

gaatggtatt acaaaggcaa acctgtctcg caaatcaagt ttgaacgact cagcgctgcc 960
agataa 966

<210> 86
<211> 321
<212> PRT
<213> Chlamydia trachomatis

<400> 86

Met Lys Arg Leu Phe Phe Ile Cys Ala Leu Ala Leu Ser Pro Leu Ala
1 5 10 15

Tyr Gly Ala Val Gln Lys Asp Pro Met Leu Met Lys Glu Thr Phe Arg
20 25 30

Asn Asn Tyr Gly Ile Ile Val Ser Lys Gln Glu Trp Asn Lys Arg Gly
35 40 45

Cys Asp Gly Ser Ile Thr Arg Val Phe Lys Asp Gly Thr Thr Thr Leu
50 55 60

Glu Val Tyr Ala Gln Gly Ala Leu His Gly Glu Val Thr Arg Thr Phe
65 70 75 80

Pro His Ser Thr Thr Leu Ala Val Ile Glu Thr Tyr Asp Gln Gly Arg
85 90 95

Leu Leu Ser Lys Lys Thr Phe Phe Pro Asn Ala Leu Pro Ala Lys Glu
100 105 110

Glu Val Tyr His Glu Asp Gly Ser Phe Ser Leu Thr Arg Trp Pro Asp
115 120 125

Asn Asn Asn Ser Asp Thr Ile Thr Asp Pro Cys Phe Val Glu Lys Thr
130 135 140

Tyr Gly Gly Arg Val Leu Glu Gly His Tyr Thr Ser Phe Asn Gly Lys
145 150 155 160

Tyr Ser Ser Thr Ile Leu Asn Gly Glu Gly Val Arg Ser Thr Phe Ser
 165 170 175

Ser Asp Ser Ile Leu Leu Thr Glu Glu Ser Phe Asn Asp Gly Val Met
 180 185 190

Val Lys Lys Thr Thr Phe Tyr Ser Thr Arg Glu Pro Glu Thr Val Thr
 195 200 205

His Tyr Val Asn Gly Tyr Pro His Gly Val Arg Phe Thr Tyr Leu Pro
 210 215 220

Gly Gly Ile Pro Asn Thr Ile Glu Glu Trp Arg Tyr Gly His Gln Asp
 225 230 235 240

Gly Leu Thr Ile Leu Phe Lys Asn Gly Cys Lys Ile Ala Glu Val Pro
 245 250 255

Phe Val Arg Gly Ala Lys Asn Gly Ile Glu Leu Arg Tyr Asn Glu Gln
 260 265 270

Glu Asn Ile Ala Glu Glu Ile Ser Trp Gln His Asn Ile Leu His Gly
 275 280 285

Val Arg Lys Ile His Ala Ala Gly Val Cys Lys Ser Glu Trp Tyr Tyr
 290 295 300

Lys Gly Lys Pro Val Ser Gln Ile Lys Phe Glu Arg Leu Ser Ala Ala
 305 310 315 320

Arg

<210> 87
 <211> 426
 <212> DNA
 <213> Chlamydia trachomatis

<400> 87
 gtgagtttag attttttaga ggattttttc cgtcgctcaa ttaccaatca caacacagct

60

tttccagaag gcttttctgga tataatctgat gtcttagctc gttcggcttt agattttaag 120
 gctgaggaac ttgctgacag tgctgttaat gacttcatcg tatcagaatc ttcagataaa 180
 ctcactttat ttaacacaaa ttttgctgtg tggttggtac ctacattagt tgatggtgag 240
 gcaattactc gcggctacat cgctttaaac caggggtgaag agttctctcc tgaattagct 300
 tttgaagcat caggaaagta taataattcg agtttaatct tagaggcggt gcgaagatat 360
 ttgtgtgata tccaggatac agaaaaagaa ttacgggcat tacgcccgcc ttcaatagat 420
 ggatag 426

<210> 88
 <211> 141
 <212> PRT
 <213> Chlamydia trachomatis

<400> 88

Val Ser Leu Asp Phe Leu Glu Asp Phe Phe Arg Arg Ser Ile Thr Asn
 1 5 10 15

His Asn Thr Ala Phe Pro Glu Gly Phe Leu Asp Ile Ser Asp Val Leu
 20 25 30

Ala Arg Ser Ala Leu Asp Phe Lys Ala Glu Glu Leu Ala Asp Ser Ala
 35 40 45

Val Asn Asp Phe Ile Val Ser Glu Ser Ser Asp Lys Leu Thr Leu Phe
 50 55 60

Asn Thr Asn Phe Ala Val Trp Leu Val Pro Thr Leu Val Asp Gly Glu
 65 70 75 80

Ala Ile Thr Arg Gly Tyr Ile Ala Leu Asn Gln Gly Glu Glu Phe Ser
 85 90 95

Pro Glu Leu Ala Phe Glu Ala Ser Gly Lys Tyr Asn Asn Ser Ser Leu
 100 105 110

Ile Leu Glu Ala Leu Arg Arg Tyr Leu Cys Asp Ile Gln Asp Thr Glu
 115 120 125

Lys Glu Leu Arg Ala Leu Arg Pro Pro Ser Ile Asp Gly
 130 135 140

<210> 89
 <211> 240
 <212> DNA
 <213> Chlamydia trachomatis

<400> 89
 ttggaagata gaatgatcga cgggattcag acgtgttctt ttagccctac gcatcgctta 60
 actgcgaaat ccgcagtgag tatagagatg ccttttagcaa cacaaaatct tcaagaggga 120
 gcttttgtca atgcaaagct cgaagcggat ttcgcgagag cagagcagat tcttacagag 180
 atgcaagaaa tccgttctag tttagagagg tcttttagaga ctctctttcc ccgcgagtaa 240

<210> 90
 <211> 79
 <212> PRT
 <213> Chlamydia trachomatis

<400> 90

Leu Glu Asp Arg Met Ile Asp Gly Ile Gln Thr Cys Ser Phe Ser Pro
 1 5 10 15

Thr His Arg Leu Thr Ala Lys Ser Ala Val Ser Ile Glu Met Pro Leu
 20 25 30

Ala Thr Gln Asn Leu Gln Glu Gly Ala Leu Val Asn Ala Lys Leu Glu
 35 40 45

Ala Asp Phe Ala Arg Ala Glu Gln Ile Leu Thr Glu Met Gln Glu Ile
 50 55 60

Arg Ser Ser Leu Glu Arg Ser Leu Glu Thr Leu Phe Pro Arg Glu
 65 70 75

<210> 91
 <211> 696
 <212> DNA
 <213> Chlamydia trachomatis

<400> 91
atgatggagg tgtttatgaa ttttttagat cagtttagatt taattattca aaataagcat 60
atgctagaac acacatttta tgtgaaatgg tcgaaggggg agcttactaa agagcaatta 120
caggcgtatg ccaaagacta ttattttacat atcaaagcct ttcctaaata tttatctgcg 180
attcatagtc gttgcgatga ttttagaggcg cgtaagttat tgttagataa cttgatggat 240
gaagagaacg gttaccctaa tcatattgat ttgtggaagc agtttgtgtt tgctctagga 300
gttactccag aagagttaga ggctcatgag cctagtgaag cagcaaaaagc gaaagtagct 360
actttcatgc ggtgggtgtac aggagattct ttagctgcag gagtggctgc tttgtattct 420
tatgagagtc aaattccacg tatcgctaga gagaaaattc gtggattgac tgagtacttt 480
ggattttcca atcctgaaga ctatgcatat ttcacagaac atgaagaagc ggatgtgcgg 540
catgctagag aagaaaaagc gctcattgag atgcttctca aagatgacgc tgataaagtg 600
ttagaggcat cgcaagaagt aacgcaatct ttgtatggct ttttagattc ttttttggat 660
ccaggaactt gttgtagttg tcatcaatct tatta 696

<210> 92
<211> 231
<212> PRT
<213> Chlamydia trachomatis

<400> 92

Met Met Glu Val Phe Met Asn Phe Leu Asp Gln Leu Asp Leu Ile Ile
1 5 10 15

Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys
20 25 30

Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr
35 40 45

Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg
50 55 60

Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp
65 70 75 80

Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val
85 90 95

Phe Ala Leu Gly Val Thr Pro Glu Glu Leu Glu Ala His Glu Pro Ser
100 105 110

Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly
115 120 125

Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln
130 135 140

Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe
145 150 155 160

Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu
165 170 175

Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu
180 185 190

Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr
195 200 205

Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Gly Thr Cys
210 215 220

Cys Ser Cys His Gln Ser Tyr
225 230

<210> 93
<211> 816
<212> DNA
<213> Chlamydia trachomatis

<400> 93
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gatgatttat tacaattaaa caaagaagga ttccttgctg gccctgaaga agaaaaacaa 120
gctttttttc ttcgggtaga aaggacatta gcagaagctc ctgtacatcc caccctttt 180

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cccatagaat tacagaaact cttcgatgtg aacccttctt ttttagaggt tgtgtactct 240
aatgaaagtt tagatgcctg ggaagcagga tgtacatgga tcaccgataa cagagtatcg 300
attcaactac gcaaacgttt tcaaaaagct tctttctggt ttgggtttttt ttccaaagaa 360
gaagtgctgt ctcacgaagc tgttcatgct gtgcgtatga aattttatga accgatcttt 420
gaagaggtct tggcatacag cacttctaaa cacttttgga gacgcttttt tgggtcccctg 480
ttccgatcag cagaagaaac gcatttcttt ctgtttttcg ttttatttgg agcggttttta 540
ttcccttggt ttcccttgat aggcctttct tgtattcttg ctcctaatat gttctttttt 600
tttcgcttat tccgaacaca aatcctattt cgtaaagcaa agaaaaaaat tcgaaaactt 660
ttaggtatag aacctctctg ggtcttacta cgcttaacag atagagaaat tcgcctattt 720
gctacacagc ccttagctgt gatagaagac ttcgctagga aagaaaagct gaaaagtgtg 780
cgctggaggc aaatctatca aagttacttc acctaa 816

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<210> 94
<211> 271
<212> PRT
<213> Chlamydia trachomatis

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<400> 94

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Leu Arg Ala Ala Leu Asn Thr Leu Glu Phe Leu Ser Ser Pro Pro Ser
1          5          10          15

Ser Asp Pro Tyr Asp Asp Leu Leu Gln Leu Asn Lys Glu Gly Phe Leu
          20          25          30

Ala Gly Pro Glu Glu Glu Lys Gln Ala Phe Phe Leu Arg Val Glu Arg
          35          40          45

Thr Leu Ala Glu Ala Pro Val His Pro Thr Pro Phe Pro Ile Glu Leu
          50          55          60

Gln Lys Leu Phe Asp Val Asn Pro Ser Phe Leu Glu Val Val Tyr Ser
65          70          75          80

Asn Glu Ser Leu Asp Ala Trp Glu Ala Gly Cys Thr Trp Ile Thr Asp
          85          90          95

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Asn Arg Val Ser Ile Gln Leu Arg Lys Arg Phe Gln Lys Ala Ser Phe
100 105 110

Trp Phe Gly Phe Phe Ser Lys Glu Glu Val Leu Ser His Glu Ala Val
115 120 125

His Ala Val Arg Met Lys Phe Tyr Glu Pro Ile Phe Glu Glu Val Leu
130 135 140

Ala Tyr Ser Thr Ser Lys His Phe Trp Arg Arg Phe Phe Gly Pro Leu
145 150 155 160

Phe Arg Ser Ala Glu Glu Thr His Phe Phe Leu Phe Phe Val Leu Phe
165 170 175

Gly Ala Phe Leu Phe Pro Trp Phe Pro Trp Ile Gly Leu Ser Cys Ile
180 185 190

Leu Ala Pro Asn Met Phe Phe Phe Phe Arg Leu Phe Arg Thr Gln Ile
195 200 205

Leu Phe Arg Lys Ala Lys Lys Lys Ile Arg Lys Leu Leu Gly Ile Glu
210 215 220

Pro Leu Trp Val Leu Leu Arg Leu Thr Asp Arg Glu Ile Arg Leu Phe
225 230 235 240

Ala Thr Gln Pro Leu Ala Val Ile Glu Asp Phe Ala Arg Lys Glu Lys
245 250 255

Leu Lys Ser Val Arg Trp Arg Gln Ile Tyr Gln Ser Tyr Phe Thr
260 265 270

<210> 95
<211> 180
<212> DNA
<213> Chlamydia trachomatis

<400> 95
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ctgcagtcgg aaagagcgta catccatgat ttattgtgtg cgataggctt tcctgaaggg 120
 ttaaagacga tagccgcgat agctaacgaa gtgctttccg aagaagattc ccaagggttaa 180

<210> 96
 <211> 59
 <212> PRT
 <213> Chlamydia trachomatis

<400> 96

Met Asp Gln Leu Ser Gln Ile His Gln Glu Leu Ala Arg Leu Glu Phe
 1 5 10 15

Ile Asn Asp Gln Leu Gln Ser Glu Arg Ala Tyr Ile His Asp Leu Leu
 20 25 30

Cys Ala Ile Gly Phe Pro Glu Gly Leu Lys Thr Ile Ala Ala Ile Ala
 35 40 45

Asn Glu Val Leu Ser Glu Glu Asp Ser Gln Gly
 50 55

<210> 97
 <211> 2490
 <212> DNA
 <213> Chlamydia trachomatis

<400> 97

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 aatgggacga gttggtctct tggcagtgat ggaaaagcta gtgatattct cctgcaagat 120
 gaaaagcttg ctccctctca gattcgcac actttaaaag atggcgagta ttatttagaa 180
 aatttagatg ctttgaggcc ggtttctgtt gatggaacag ttatcactgc ccctgttttg 240
 ttaaaagatg gggtttcctt tgtaatggga agctgccaaag tctcgttttt taaaggggaa 300
 gaggtagaag gagatataga gttatcgttc cagacagaag gtggtaatga gggagagcct 360
 gcagcgcaag gctcttcaag cgtttcgtcc gaagctccta aaaaggagac agggaatcca 420
 agtcttcctt cggaggcaaa ggcttctgga gaagtatcta gttcagcaat agcgaaagaa 480
 caagagttag cggcgtcctt tttagcttct gttgagaagg agcctggaac accaaaagaa 540

gtctctgagc	caaaggtctc	ttcacaagaa	ggacagactc	cttctggttac	aggagaaaaa	600
aaggatcttg	agcttccttt	ggcaagtcaa	gaacaaccta	aacaaactac	tccatcaggc	660
agtggatgaac	caacccaatc	tcaaaaacgcg	agtatggaag	aaaacagAAC	gtcgcccgat	720
caaaatcagc	agccacagct	ttcttctgct	tcagaatcgg	gttctcaaag	tcccgaaaat	780
caggagcaac	aaccttctca	aacgcctccc	ccatccccgg	aaactccaga	gccgtcagga	840
gaacctaata	gcgctacgga	agaaaactcg	ccatctccaa	tggagaaagc	ttccgtaaca	900
gaagaaggca	gctcagggac	gagtgaagaa	gaaaaagagg	gtgaagaaga	tactgctgaa	960
agcgcagcaa	atgaagagcc	aaaggcagag	gcttctcaag	aagaagagaa	gaaagaggaa	1020
gataaaggag	aggttcttgc	tccctttaat	gttcaggatc	ttttccgttt	tgatcaagga	1080
atcttccctg	ctgagataga	agatcttgca	cagaaacaag	ttgcggttga	tttgacgcaa	1140
ccatcacgat	ttttgttgaa	ggttcttgct	ggtgcgaata	tcggtgctga	attccatttg	1200
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gatatgagta	tttcgcgcca	acatgcgaag	atcattatcg	gaaatgataa	ttcagttttg	1320
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tctacgctct	ctgcgaatca	agttgttgct	ctaggaacaa	cgttattctt	acttgctcgac	1440
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ggtcgtccgc	aatctcctga	agagattgct	gccagagctg	cggaagagga	agaagagaag	1560
agaaaacgtg	ctacgttgcc	aacaggtgct	tttatattaa	ccttgttcat	tggaggggta	1620
gctctgctct	ttggaatagg	aacagcttct	ttgttccata	cgaaggaagt	agtttctata	1680
gatcaaatacg	atgtgattca	tgatattgaa	catgtaattc	agcagtttcc	aactgtacgg	1740
tttacgttca	ataagaacaa	cggacagttg	ttcttaattg	ggcatgtaag	aaatagcatt	1800
gataagagcg	agttacttta	caaagtggat	gctctctcgt	ttgtcaagtc	ggtagatgat	1860
aacgtgatcg	atgacgaggc	agtatggcaa	gagatgaata	ttctcttgtc	taagaatcca	1920
gaatttaaag	gtatcagcat	gcaatctcca	gagccgggga	tttttgtaat	cagcgggtat	1980
ctaaagacag	aagaacaagc	agcttggttg	gctgattatc	taaatctaca	ttttaattac	2040
ctttcactat	tggataataa	ggtgattatc	gaatcacaag	tcatgaaagc	tcttgctgga	2100

catcttgtgc aatcagggtt tgcgaacggt catgtgtcct tcaccaatgg tgaagctggt 2160
 ttgacaggat atatcaataa taaagatgca gataaattcc gaacggttgt gcaagaactg 2220
 caagatattg cagggattcg tgcggtgaag aattttgtcg ttttgctgcc tgcagaagaa 2280
 ggtggtattg atctaaatat gcggtatcca ggccggtatc gggtaaccgg tttttcaaag 2340
 tgcggggata ttagtattaa tgtttagtgg aatgggcgta ttttaactcg aggcgatatt 2400
 ttagatggaa tgacggtaac aagcattcaa tcgcattgta tctttttaga acgggaaggg 2460
 ttgaaatata aaattgagta caataaatag 2490

<210> 98
 <211> 829
 <212> PRT
 <213> Chlamydia trachomatis

<400> 98

Met Gly Ile Arg Leu Val Ile Asp Lys Gly Pro Leu Ser Gly Thr Val
 1 5 10 15

Leu Ile Leu Glu Asn Gly Thr Ser Trp Ser Leu Gly Ser Asp Gly Lys
 20 25 30

Ala Ser Asp Ile Leu Leu Gln Asp Glu Lys Leu Ala Pro Ser Gln Ile
 35 40 45

Arg Ile Thr Leu Lys Asp Gly Glu Tyr Tyr Leu Glu Asn Leu Asp Ala
 50 55 60

Leu Arg Pro Val Ser Val Asp Gly Thr Val Ile Thr Ala Pro Val Leu
 65 70 75 80

Leu Lys Asp Gly Val Ser Phe Val Met Gly Ser Cys Gln Val Ser Phe
 85 90 95

Phe Lys Gly Glu Glu Val Glu Gly Asp Ile Glu Leu Ser Phe Gln Thr
 100 105 110

Glu Gly Gly Asn Glu Gly Glu Pro Ala Ala Gln Gly Ser Ser Ser Val
 115 120 125

Ser	Ser	Glu	Ala	Pro	Lys	Lys	Glu	Thr	Gly	Asn	Pro	Ser	Leu	Pro	Ser
	130					135					140				
Glu	Ala	Lys	Ala	Ser	Gly	Glu	Val	Ser	Ser	Ser	Ala	Ile	Ala	Lys	Glu
145					150					155					160
Gln	Glu	Leu	Ala	Ala	Ser	Phe	Leu	Ala	Ser	Val	Glu	Lys	Glu	Pro	Gly
				165					170					175	
Thr	Pro	Lys	Glu	Val	Ser	Glu	Pro	Lys	Val	Ser	Ser	Gln	Glu	Gly	Gln
			180					185					190		
Thr	Pro	Ser	Val	Thr	Gly	Glu	Lys	Lys	Asp	Leu	Glu	Leu	Pro	Leu	Ala
		195					200					205			
Ser	Gln	Glu	Gln	Pro	Lys	Gln	Thr	Thr	Pro	Ser	Gly	Ser	Gly	Glu	Pro
	210					215					220				
Thr	Gln	Ser	Gln	Asn	Ala	Ser	Met	Glu	Glu	Asn	Arg	Thr	Ser	Pro	Asp
225					230					235					240
Gln	Asn	Gln	Gln	Pro	Gln	Leu	Ser	Ser	Ala	Ser	Glu	Ser	Gly	Ser	Gln
				245					250					255	
Ser	Pro	Glu	Asn	Gln	Glu	Gln	Gln	Pro	Ser	Gln	Thr	Pro	Pro	Pro	Ser
			260					265					270		
Pro	Glu	Thr	Pro	Glu	Pro	Ser	Gly	Glu	Pro	Asn	Ser	Ala	Thr	Glu	Glu
		275					280					285			
Asn	Ser	Pro	Ser	Pro	Met	Glu	Lys	Ala	Ser	Val	Thr	Glu	Glu	Gly	Ser
	290					295					300				
Ser	Gly	Thr	Ser	Glu	Glu	Glu	Lys	Glu	Gly	Glu	Glu	Asp	Thr	Ala	Glu
305					310					315					320
Ser	Ala	Ala	Asn	Glu	Glu	Pro	Lys	Ala	Glu	Ala	Ser	Gln	Glu	Glu	Glu
				325					330					335	

Lys Lys Glu Glu Asp Lys Gly Glu Val Leu Ala Pro Phe Asn Val Gln
340 345 350

Asp Leu Phe Arg Phe Asp Gln Gly Ile Phe Pro Ala Glu Ile Glu Asp
355 360 365

Leu Ala Gln Lys Gln Val Ala Val Asp Leu Thr Gln Pro Ser Arg Phe
370 375 380

Leu Leu Lys Val Leu Ala Gly Ala Asn Ile Gly Ala Glu Phe His Leu
385 390 395 400

Asp Ser Gly Lys Thr Tyr Ile Val Gly Ser Asp Pro Gln Val Ala Asp
405 410 415

Ile Val Leu Ser Asp Met Ser Ile Ser Arg Gln His Ala Lys Ile Ile
420 425 430

Ile Gly Asn Asp Asn Ser Val Leu Ile Glu Asp Leu Gly Ser Lys Asn
435 440 445

Gly Val Ile Val Glu Gly Arg Lys Ile Glu His Gln Ser Thr Leu Ser
450 455 460

Ala Asn Gln Val Val Ala Leu Gly Thr Thr Leu Phe Leu Leu Val Asp
465 470 475 480

Tyr Ala Ala Pro Ser Asp Thr Val Met Ala Thr Ile Ser Ser Glu Asp
485 490 495

Tyr Gly Leu Phe Gly Arg Pro Gln Ser Pro Glu Glu Ile Ala Ala Arg
500 505 510

Ala Ala Glu Glu Glu Glu Lys Arg Lys Arg Ala Thr Leu Pro Thr
515 520 525

Gly Ala Phe Ile Leu Thr Leu Phe Ile Gly Gly Leu Ala Leu Leu Phe
530 535 540

Gly 545	Ile	Gly	Thr	Ala	Ser 550	Leu	Phe	His	Thr	Lys 555	Glu	Val	Val	Ser	Ile 560
Asp	Gln	Ile	Asp	Leu 565	Ile	His	Asp	Ile	Glu 570	His	Val	Ile	Gln	Gln 575	Phe
Pro	Thr	Val	Arg 580	Phe	Thr	Phe	Asn	Lys 585	Asn	Asn	Gly	Gln	Leu 590	Phe	Leu
Ile	Gly	His 595	Val	Arg	Asn	Ser	Ile 600	Asp	Lys	Ser	Glu	Leu 605	Leu	Tyr	Lys
Val	Asp 610	Ala	Leu	Ser	Phe	Val 615	Lys	Ser	Val	Asp	Asp 620	Asn	Val	Ile	Asp
Asp 625	Glu	Ala	Val	Trp	Gln 630	Glu	Met	Asn	Ile	Leu 635	Leu	Ser	Lys	Asn	Pro 640
Glu	Phe	Lys	Gly	Ile 645	Ser	Met	Gln	Ser	Pro 650	Glu	Pro	Gly	Ile	Phe 655	Val
Ile	Ser	Gly	Tyr 660	Leu	Lys	Thr	Glu	Glu 665	Gln	Ala	Ala	Cys	Leu 670	Ala	Asp
Tyr	Leu	Asn 675	Leu	His	Phe	Asn	Tyr 680	Leu	Ser	Leu	Leu	Asp 685	Asn	Lys	Val
Ile	Ile 690	Glu	Ser	Gln	Val	Met 695	Lys	Ala	Leu	Ala	Gly 700	His	Leu	Val	Gln
Ser 705	Gly	Phe	Ala	Asn	Val 710	His	Val	Ser	Phe	Thr 715	Asn	Gly	Glu	Ala	Val 720
Leu	Thr	Gly	Tyr	Ile 725	Asn	Asn	Lys	Asp	Ala 730	Asp	Lys	Phe	Arg	Thr 735	Val
Val	Gln	Glu	Leu 740	Gln	Asp	Ile	Ala	Gly 745	Ile	Arg	Ala	Val	Lys 750	Asn	Phe

Val Val Leu Leu Pro Ala Glu Glu Gly Val Ile Asp Leu Asn Met Arg
755 760 765

Tyr Pro Gly Arg Tyr Arg Val Thr Gly Phe Ser Lys Cys Gly Asp Ile
770 775 780

Ser Ile Asn Val Val Val Asn Gly Arg Ile Leu Thr Arg Gly Asp Ile
785 790 795 800

Leu Asp Gly Met Thr Val Thr Ser Ile Gln Ser His Cys Ile Phe Leu
805 810 815

Glu Arg Glu Gly Leu Lys Tyr Lys Ile Glu Tyr Asn Lys
820 825

<210> 99
<211> 525
<212> DNA
<213> Chlamydia trachomatis

<400> 99
ttggaggatt acgtggcttc tcctcatctt cgttccctag cgtgtttaga taaccacaa 60
ctacccatag aaacacctct ctttgagcaa gaagctctct cccatgagct tctttctctt 120
attcaggtgt tccgtaaatt atctgtccat cttctctctg aaatcgaaaa attatctcag 180
aaactaaaac ctgagcttct tgaacttgct gtcctcgtct gtgaaaaatt tctgtacaga 240
aagcttgcct gtacagaaga acttgctctc ctaatctccg cagctctgca acatcattta 300
gctacttatg ccgtctctcc cataaaaata ggtttacatc ctgaagatct ttcaaacctta 360
tctaaatggg taatccttca cgatgttccc ttactcaaaa atatcgaatt cattgcagat 420
cctttatgca agaaagctag ctataaaaata gaactccctt caggaattct gagacaagac 480
atcggggaag agctgtccca tctactgagt gtactcactc cataa 525

<210> 100
<211> 174
<212> PRT
<213> Chlamydia trachomatis

<400> 100

Leu Glu Asp Tyr Val Ala Ser Pro His Leu Arg Ser Leu Ala Cys Leu
1 5 10 15

Asp Asn Pro Gln Leu Pro Ile Glu Thr Pro Leu Phe Glu Gln Glu Ala
20 25 30

Leu Ser His Glu Leu Leu Ser Leu Ile Gln Val Phe Arg Lys Leu Ser
35 40 45

Val His Leu Leu Ser Glu Ile Glu Lys Leu Ser Gln Lys Leu Lys Pro
50 55 60

Glu Leu Leu Glu Leu Ala Val Leu Val Cys Glu Lys Phe Leu Tyr Arg
65 70 75 80

Lys Leu Ala Cys Thr Glu Glu Leu Ala Leu Leu Ile Ser Ala Ala Leu
85 90 95

Gln His His Leu Ala Thr Tyr Ala Val Ser Pro Ile Lys Ile Gly Leu
100 105 110

His Pro Glu Asp Leu Ser Asn Leu Ser Lys Trp Leu Ile Leu His Asp
115 120 125

Val Pro Leu Leu Lys Asn Ile Glu Phe Ile Ala Asp Pro Leu Cys Lys
130 135 140

Lys Ala Ser Tyr Lys Ile Glu Leu Pro Ser Gly Ile Leu Arg Gln Asp
145 150 155 160

Ile Gly Glu Glu Leu Ser His Leu Leu Ser Val Leu Thr Pro
165 170

<210> 101

<211> 420

<212> DNA

<213> Chlamydia trachomatis

<400> 101

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60

attcgggtcat ccgaggacaa agccagcgca acccttaagc tggagatcca tgccgcttct 120
gaagatattg gaaagatcat cgggagaaaa ggacaaacca tacaagcgct aagaaccatt 180
ctaaaacgtg taggcgctag attgcagaaa aaaatccttg ttgagcttgc tcaacctgaa 240
aacggctctc tcacagacga agaagttttg tcttttagatt atatctctgc agcttctgcc 300
gaagatttcg aagaagattc ttcttttgct gaaaatagca tcgaagaaga accttcggtc 360
attgtacgat ctcttgcagg tgtatgcca ggtttagct gctctcatca tcatgattag 420

<210> 102
<211> 139
<212> PRT
<213> Chlamydia trachomatis

<400> 102

Met Glu Asp Phe Ala Glu Tyr Ile Val Lys Asn Leu Val Thr Asp Pro
1 5 10 15

Asn Ala Val Glu Ile Arg Ser Ser Glu Asp Lys Ala Ser Ala Thr Leu
20 25 30

Lys Leu Glu Ile His Ala Ala Ser Glu Asp Ile Gly Lys Ile Ile Gly
35 40 45

Arg Lys Gly Gln Thr Ile Gln Ala Leu Arg Thr Ile Leu Lys Arg Val
50 55 60

Gly Ala Arg Leu Gln Lys Lys Ile Leu Val Glu Leu Ala Gln Pro Glu
65 70 75 80

Asn Gly Ser Leu Thr Asp Glu Glu Val Leu Ser Leu Asp Tyr Ile Ser
85 90 95

Ala Ala Ser Ala Glu Asp Phe Glu Glu Asp Ser Ser Phe Ala Glu Asn
100 105 110

Ser Ile Glu Glu Glu Pro Ser Val Ile Val Arg Ser Leu Ala Gly Val
115 120 125

Cys Pro Gly Cys Ser Cys Ser His His His Asp
 130 135

<210> 103
 <211> 279
 <212> DNA
 <213> Chlamydia trachomatis

<400> 103
 atgaaggaag aaattctcgc gctacttgat catttatata cggagcagga aagacgatta 60
 atgtcgctag ggacgacgat tgttcctgga ttgacgaaag aggatctttt acagcctatg 120
 gattatgatg aacttgagga gaacccttct tttagatttg aagaaggagt tttgaatgga 180
 ataggagaga ctcgagccgc attatattct tttttttctg atctagaaga ctccttttgc 240
 gtggagtctt ctagcgatac gagcctctgt aaggattag 279

<210> 104
 <211> 92
 <212> PRT
 <213> Chlamydia trachomatis

<400> 104
 Met Lys Glu Glu Ile Leu Ala Leu Leu Asp His Leu Tyr Thr Glu Gln
 1 5 10 15
 Glu Arg Arg Leu Met Ser Leu Gly Thr Thr Ile Val Pro Gly Leu Thr
 20 25 30
 Lys Glu Asp Leu Leu Gln Pro Met Asp Tyr Asp Glu Leu Glu Glu Asn
 35 40 45
 Pro Ser Phe Arg Phe Glu Glu Gly Val Leu Asn Gly Ile Gly Glu Thr
 50 55 60
 Arg Ala Ala Leu Tyr Ser Phe Phe Ser Asp Leu Glu Asp Ser Phe Cys
 65 70 75 80
 Val Glu Ser Ser Ser Asp Thr Ser Leu Cys Lys Asp
 85 90

<210> 105
 <211> 507
 <212> DNA
 <213> Chlamydia trachomatis

<400> 105
 atgtggcata aagaaccaat gcatgctgta ttacagctac ctgaaacacc tctgggttaca 60
 ggaacaacga actctgcaac ggctgatgag attataacac gatttgctaa ggattctaac 120
 cctctcatcg ttactgttta ctatatattac cagtctgttc tcgtcgcgca aaataacttg 180
 tctctagttg cagagcaatt gcaagctaatt gctgccgcgc aaacattcct gaacaatgaa 240
 gaagcgctat accaatacac taccattcca aaaaaccaag taaactctca aaactcctct 300
 tattttacaaa acgtacaatc ggtaaaccaa gcagtcggag catctagaca agcgattcaa 360
 aaccaaatat ctgggtcttg aaatgcttct caagtgattt ccagtaactt gaacacgaat 420
 aataatatta ttcaacagtc cctacaagtc ggtcaggcgc tcattcaaac gttttcaciaa 480
 atcgtttagct tgatcgcgaa tatctaa 507

<210> 106
 <211> 168
 <212> PRT
 <213> Chlamydia trachomatis

<400> 106

Met	Trp	His	Lys	Glu	Pro	Met	His	Ala	Val	Leu	Gln	Leu	Pro	Glu	Thr
1				5					10					15	
Pro	Leu	Val	Thr	Gly	Thr	Thr	Asn	Ser	Ala	Thr	Ala	Asp	Glu	Ile	Ile
			20					25					30		
Thr	Arg	Phe	Ala	Lys	Asp	Ser	Asn	Pro	Leu	Ile	Val	Thr	Val	Tyr	Tyr
		35					40					45			
Ile	Tyr	Gln	Ser	Val	Leu	Val	Ala	Gln	Asn	Asn	Leu	Ser	Leu	Val	Ala
	50					55					60				
Glu	Gln	Leu	Gln	Ala	Asn	Ala	Ala	Ala	Gln	Thr	Phe	Leu	Asn	Asn	Glu
65					70					75					80

Glu Ala Leu Tyr Gln Tyr Thr Thr Ile Pro Lys Asn Gln Val Asn Ser
85 90 95

Gln Asn Ser Ser Tyr Leu Gln Asn Val Gln Ser Val Asn Gln Ala Val
100 105 110

Gly Ala Ser Arg Gln Ala Ile Gln Asn Gln Ile Ser Gly Leu Gly Asn
115 120 125

Ala Ser Gln Val Ile Ser Ser Asn Leu Asn Thr Asn Asn Asn Ile Ile
130 135 140

Gln Gln Ser Leu Gln Val Gly Gln Ala Leu Ile Gln Thr Phe Ser Gln
145 150 155 160

Ile Val Ser Leu Ile Ala Asn Ile
165

<210> 107
<211> 486
<212> DNA
<213> Chlamydia psittaci

<400> 107
gtgcgcatatc taccctttga tccttatgga gcattacctc ctcaaggagt aaataaagat 60
cctcatagca atataccttt aaatcagaag atttctgatg aaatagctaa aaatgaagct 120
atgcgtttgg ctttgcttgc tattactgat caagaaaaag acaaaagaaa gagaaaacat 180
cggtttaaaa ttcttaaccg caaacaagca aaagtgtcc tatctcaatt gcgaaatgta 240
gatttagact ttcaaagttt gaaaaatgct gggttaaaaag aagaagaaga taacgaagaa 300
gataatgaag aatcttcaaa acaagggaaa actttccata ttgctagtag taagaagcct 360
gtgaagatag gggcatctgc agctcaggct attgctgatg ctgcagaggc ttgggttatt 420
gctcgcaata gaggagtctt ggatatggcc tccctattat tctggcataa agatgatgag 480
tggttaa 486

<210> 108
<211> 161
<212> PRT

<213> Chlamydia psittaci

<400> 108

Val Arg Ile Leu Pro Phe Asp Pro Tyr Gly Ala Leu Pro Pro Gln Gly
1 5 10 15

Val Asn Lys Asp Pro His Ser Asn Ile Pro Leu Asn Gln Lys Ile Ser
20 25 30

Asp Glu Ile Ala Lys Asn Glu Ala Met Arg Leu Ala Leu Leu Ala Ile
35 40 45

Thr Asp Gln Glu Lys Asp Lys Arg Lys Arg Lys His Arg Phe Lys Ile
50 55 60

Leu Asn Arg Lys Gln Ala Lys Val Leu Leu Ser Gln Leu Arg Asn Val
65 70 75 80

Asp Leu Asp Phe Gln Ser Leu Lys Asn Ala Gly Leu Lys Glu Glu Glu
85 90 95

Asp Asn Glu Glu Asp Asn Glu Glu Ser Ser Lys Gln Gly Lys Thr Phe
100 105 110

His Ile Ala Ser Ser Lys Lys Pro Val Lys Ile Gly Ala Ser Ala Ala
115 120 125

Gln Ala Ile Ala Asp Ala Ala Glu Ala Trp Val Ile Ala Arg Asn Arg
130 135 140

Gly Val Leu Asp Met Ala Ser Leu Leu Phe Trp His Lys Asp Asp Glu
145 150 155 160

Cys

<210> 109

<211> 447

<212> DNA

<213> Chlamydia psittaci

<400> 109
atgaaaagtg aacgtctgaa aaaactcgaa tctgaattac gtgacttaac ccagtggatg 60
caattggggtt tagttccaaa aaaagaaatc gatagacata aggaagaaat acgttcttta 120
gaaaacaaaa tccatgaaga gaaggaacgc ctgcaacttc taaaagaaag tggcgaagtt 180
gaagagtttg ttactccaag acgtagccct gcaaaaacgg tatatcctga cgggtccaagc 240
atgtcagata tggaatttgt tgaagctaca gagacagaaa ttgatattga tccaggtgaa 300
accgtagagc tcgaacttcc tgatgaagaa cgtgaagaag gcgctgtaga aatcgattat 360
tccagtgatg acgatgaaga tcctttcagt gatcgcaatc gttggagacg tgggggcatt 420
gttgaccccg atgctaata atggtaa 447

<210> 110
<211> 148
<212> PRT
<213> Chlamydia psittaci

<400> 110

Met Lys Ser Glu Arg Leu Lys Lys Leu Glu Ser Glu Leu Arg Asp Leu
1 5 10 15

Thr Gln Trp Met Gln Leu Gly Leu Val Pro Lys Lys Glu Ile Asp Arg
20 25 30

His Lys Glu Glu Ile Arg Ser Leu Glu Asn Lys Ile His Glu Glu Lys
35 40 45

Glu Arg Leu Gln Leu Leu Lys Glu Ser Gly Glu Val Glu Glu Phe Val
50 55 60

Thr Pro Arg Arg Ser Pro Ala Lys Thr Val Tyr Pro Asp Gly Pro Ser
65 70 75 80

Met Ser Asp Met Glu Phe Val Glu Ala Thr Glu Thr Glu Ile Asp Ile
85 90 95

Asp Pro Gly Glu Thr Val Glu Leu Glu Leu Pro Asp Glu Glu Arg Glu
100 105 110

Glu Gly Ala Val Glu Ile Asp Tyr Ser Ser Asp Asp Asp Glu Asp Pro
 115 120 125

Phe Ser Asp Arg Asn Arg Trp Arg Arg Gly Gly Ile Val Asp Pro Asp
 130 135 140

Ala Asn Glu Trp
 145

<210> 111
 <211> 972
 <212> DNA
 <213> Chlamydia psittaci

<400> 111
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 gctctaaaac aagattcttc tgttatgaag gaaaccttcc gtaacaacta cggaattatt 120
 gtatcaggaa aagattgggt aaaacgaggc tgtgatggga caatcaccaa agtttttaaag 180
 gatgggtcta ctctttatga aatttacgtt cagggctctc ttcattggcg gataacgtta 240
 acattcccc attctacgac tcttgctgta ataaaaactt acgatcaggg aaggcttggt 300
 tcatataaaa cattcttttc taatgggtta ccttctcaag aagaattata ccaagaagat 360
 ggctctcttg ttgtgactcg ctggcctgac aacaaaaata gcgataccat caccgatcct 420
 tattttactg agactaccta ccagggtcgt gtacttgaag ggagctactc ctcatttaat 480
 gggaaatata catcaacaat tcgcaatgga gaaggcatac gctcgaactt ttctccaagt 540
 aacgtccttc tttctgaaga aacctttaac gatggcggtta tggtaaaaag aactaccttc 600
 tatgctacta gagatcctga aactataacg cattatatta atggccaacc tcatggattg 660
 cgtttaacct atctccctgg aggattcct aacactattg aagaatggcg ttatggttac 720
 caagatggaa ctacaacagt atttaaaaac gggttgcaaag ctgctgagat tccttttgta 780
 aaaggatcta aggaaggatg tgaattacgc tataatgaag acgaagttat tgccgaagaa 840
 gtgtcttgga gaaataactt ccctcatggt atgagaaaaga tctatgctgc cgggtgtttat 900
 aatgcgagt ggtaccaccg cggacgccta gtctcaaaag ctaagttcga gagactcaat 960
 aatgcaggat aa 972

<210> 112
 <211> 323
 <212> PRT
 <213> Chlamydia psittaci

<400> 112

Met Lys Arg Leu Leu Phe Cys Val Cys Ala Leu Ser Phe Ser Cys Phe
 1 5 10 15

Thr Tyr Gly Ser Ala Leu Lys Gln Asp Ser Ser Val Met Lys Glu Thr
 20 25 30

Phe Arg Asn Asn Tyr Gly Ile Ile Val Ser Gly Lys Asp Trp Val Lys
 35 40 45

Arg Gly Cys Asp Gly Thr Ile Thr Lys Val Leu Lys Asp Gly Ser Thr
 50 55 60

Leu Tyr Glu Ile Tyr Val Gln Gly Leu Leu His Gly Glu Ile Thr Leu
 65 70 75 80

Thr Phe Pro His Ser Thr Thr Leu Ala Val Ile Lys Thr Tyr Asp Gln
 85 90 95

Gly Arg Leu Val Ser Tyr Lys Thr Phe Phe Ser Asn Gly Leu Pro Ser
 100 105 110

Gln Glu Glu Leu Tyr Gln Glu Asp Gly Ser Leu Val Val Thr Arg Trp
 115 120 125

Pro Asp Asn Lys Asn Ser Asp Thr Ile Thr Asp Pro Tyr Phe Thr Glu
 130 135 140

Thr Thr Tyr Gln Gly Arg Val Leu Glu Gly Ser Tyr Ser Ser Phe Asn
 145 150 155 160

Gly Lys Tyr Thr Ser Thr Ile Arg Asn Gly Glu Gly Ile Arg Ser Asn
 165 170 175

Phe Ser Pro Ser Asn Val Leu Leu Ser Glu Glu Thr Phe Asn Asp Gly

180					185					190					
Val	Met	Val	Lys	Arg	Thr	Thr	Phe	Tyr	Ala	Thr	Arg	Asp	Pro	Glu	Thr
		195					200					205			
Ile	Thr	His	Tyr	Ile	Asn	Gly	Gln	Pro	His	Gly	Leu	Arg	Leu	Thr	Tyr
	210					215					220				
Leu	Pro	Gly	Gly	Ile	Pro	Asn	Thr	Ile	Glu	Glu	Trp	Arg	Tyr	Gly	Tyr
225					230					235					240
Gln	Asp	Gly	Thr	Thr	Thr	Val	Phe	Lys	Asn	Gly	Cys	Lys	Ala	Ala	Glu
				245					250					255	
Ile	Pro	Phe	Val	Lys	Gly	Ser	Lys	Glu	Gly	Cys	Glu	Leu	Arg	Tyr	Asn
			260					265					270		
Glu	Asp	Glu	Val	Ile	Ala	Glu	Glu	Val	Ser	Trp	Arg	Asn	Asn	Phe	Pro
		275					280					285			
His	Gly	Met	Arg	Lys	Ile	Tyr	Ala	Ala	Gly	Val	Tyr	Lys	Cys	Glu	Trp
	290					295					300				
Tyr	His	Arg	Gly	Arg	Leu	Val	Ser	Lys	Ala	Lys	Phe	Glu	Arg	Leu	Asn
305					310					315					320
Asn Ala Gly															

<210> 113
 <211> 975
 <212> DNA
 <213> Chlamydia psittaci

<400> 113	
atgacatctg caatgcctcg tgtggctagc cttgtagtgg gcagtagaaa tgtgtttatg	60
caaacagcta tgcagggagc caagaaaggc gatgtaggct gctgcattag gcagttttgtt	120
acgaatggaa acaaccattt agcacgcttt gtcggaagta caaaaaatat agataaggca	180
tttaagtttg ctaaatccgt ctctgaattt agctgcggtg ttattgaaag cacaggtgat	240

acaggacctg ctcttcagat aagtaaaaac gttgcatcga ctttaagcac ggctagaaat 300
gttgctgcct tgtctaattgt gttcactggg gcgattcctg gattcgctctt ttctctcaaag 360
aattgctata atcatattaa gaaatgtttt gctccagaaa ctgagtacga ttgcggtagt 420
attgagaaaag gcttgcctta taacaagctt tatctcacta agggatgatca tgtgttgggg 480
gcgattaaaag aagggttgctc tgcagttggc gcggggaactt acgttgcaac gtttggtgctc 540
agccgtccgg tgctcttggc aaacaagctt gctcacaagc ctttctctctc ttcaggagtg 600
aaggcagcat tttgtaacag cgtaacctat atgatgacag caaaccacgc tgcagggggtt 660
atcggcggag cagcagcctt gctctatgaa aaccgtgtat ataaacgcgc ttctgaggga 720
ttgttagctt ctaaaatgac agagagtctg gattctgaag tttacgatca agtgtctaaa 780
ggcttgaaaag agtcgcacta ccaagctgtt aaaaaaacia tacttggaat tttagaaaaa 840
gcatttgaat tgatcgctga tatattcgat ttcattgctt taccaattac tgcttcagtt 900
cgcttggtcaa taaaagcggg attagtcaca gtatccagtg gtttcgggtct ttacagcgctc 960
tggtgtcaatt cttaa 975

<210> 114
<211> 324
<212> PRT
<213> Chlamydia psittaci

<400> 114

Met Thr Ser Ala Met Pro Arg Val Ala Ser Leu Val Val Gly Ser Arg
1 5 10 15

Asn Val Phe Met Gln Thr Ala Met Gln Gly Ala Lys Lys Gly Asp Val
20 25 30

Gly Cys Cys Ile Arg Gln Phe Val Thr Asn Gly Asn Asn His Leu Ala
35 40 45

Arg Phe Val Gly Ser Thr Lys Asn Ile Asp Lys Ala Phe Lys Phe Ala
50 55 60

Lys Ser Val Ser Glu Phe Ser Cys Gly Val Ile Glu Ser Thr Gly Asp
65 70 75 80

Thr	Gly	Pro	Ala	Leu	Gln	Ile	Ser	Lys	Asn	Val	Ala	Ser	Thr	Leu	Ser	85	90	95
Thr	Ala	Arg	Asn	Val	Val	Ala	Leu	Ser	Asn	Val	Phe	Thr	Gly	Ala	Ile	100	105	110
Pro	Gly	Phe	Val	Leu	Ser	Ser	Lys	Asn	Cys	Tyr	Asn	His	Ile	Lys	Lys	115	120	125
Cys	Phe	Ala	Pro	Glu	Thr	Glu	Tyr	Asp	Cys	Gly	Ser	Ile	Glu	Lys	Gly	130	135	140
Leu	Pro	Tyr	Asn	Lys	Leu	Tyr	Leu	Thr	Lys	Gly	Asp	His	Val	Leu	Gly	145	150	155
Ala	Ile	Lys	Glu	Gly	Cys	Ser	Ala	Val	Gly	Ala	Gly	Thr	Tyr	Val	Ala	165	170	175
Thr	Phe	Gly	Val	Ser	Arg	Pro	Val	Leu	Leu	Ala	Asn	Lys	Leu	Ala	His	180	185	190
Lys	Pro	Phe	Leu	Ser	Ser	Gly	Val	Lys	Ala	Ala	Phe	Cys	Asn	Ser	Val	195	200	205
Thr	Tyr	Met	Met	Thr	Ala	Asn	His	Ala	Ala	Gly	Val	Ile	Gly	Gly	Ala	210	215	220
Ala	Ala	Leu	Leu	Tyr	Glu	Asn	Arg	Val	Tyr	Lys	Arg	Ala	Ser	Glu	Gly	225	230	235
Leu	Leu	Ala	Ser	Lys	Met	Thr	Glu	Ser	Leu	Asp	Ser	Glu	Val	Tyr	Asp	245	250	255
Gln	Val	Ser	Lys	Gly	Leu	Lys	Glu	Ser	His	Tyr	Gln	Ala	Val	Lys	Lys	260	265	270
Thr	Ile	Leu	Gly	Ile	Leu	Glu	Lys	Ala	Phe	Glu	Leu	Ile	Ala	Asp	Ile	275	280	285

Phe Asp Phe Ile Ala Leu Pro Ile Thr Ala Ser Val Arg Leu Ala Ile
 290 295 300

Lys Ala Gly Leu Val Thr Val Ser Ser Gly Phe Gly Leu Tyr Ser Val
 305 310 315 320

Trp Val Asn Ser

<210> 115
 <211> 423
 <212> DNA
 <213> Chlamydia psittaci

<400> 115
 atgagtttgg attttttaga agaattttac cgtcgttcta tttgtaacaa aggaacggca 60
 tttcctgagg gcttcatgga tattgccgat gtcctatccc attctgcgtc tgaacttaaa 120
 atcgagtcta tgagcgatct tcctgttaac aatttcatca ttgcagaatc ggcagataaa 180
 ctcactttat ttaatgcaga ttttgctggt tggttagtgc ctgagcttgt ccaaggagaa 240
 gctgtgactc gaggatacat cgctttatac cattctggag gggattatac tccagaaatg 300
 gcatttcaag cctctgggga gtacaatcaa tcagcattaa ttcttgaagc acttcagata 360
 tatctacaag acataaaaga taccgaaagc acgctacgct ctttccgctt taatcaagac 420
 tag 423

<210> 116
 <211> 140
 <212> PRT
 <213> Chlamydia psittaci

<400> 116

Met Ser Leu Asp Phe Leu Glu Glu Phe Tyr Arg Arg Ser Ile Cys Asn
 1 5 10 15

Lys Gly Thr Ala Phe Pro Glu Gly Phe Met Asp Ile Ala Asp Val Leu
 20 25 30

Ser His Ser Ala Ser Glu Leu Lys Ile Glu Ser Met Ser Asp Leu Pro
 35 40 45

Val Asn Asn Phe Ile Ile Ala Glu Ser Ala Asp Lys Leu Thr Leu Phe
50 55 60

Asn Ala Asp Phe Ala Val Trp Leu Val Pro Glu Leu Val Gln Gly Glu
65 70 75 80

Ala Val Thr Arg Gly Tyr Ile Ala Leu Tyr His Ser Gly Gly Asp Tyr
85 90 95

Thr Pro Glu Met Ala Phe Gln Ala Ser Gly Glu Tyr Asn Gln Ser Ala
100 105 110

Leu Ile Leu Glu Ala Leu Gln Ile Tyr Leu Gln Asp Ile Lys Asp Thr
115 120 125

Glu Ser Thr Leu Arg Ser Phe Arg Phe Asn Gln Asp
130 135 140

<210> 117
<211> 849
<212> DNA
<213> Chlamydia psittaci

<400> 117
atggaattaa ataaaacatc cgagtctttg tacaattgca agacagatcg ccattcagta 60
caacaagaag taggtccaga gcctaaagat aaccgtgacg tttaaagtgtt ttcttttagaa 120
ggccgtcaac aatcaaaaaca agatcgtcag gataaagttt ccagtaaaga ttctcgtcaa 180
gaatctcgag gagctgatga taagcatgta gaagagaaaa catcagcagt atcttctaaa 240
gaagaagata aagaagagag tgatgggttc atggcttatg acaatcctac agcaggcatg 300
gcatttgtag atgttgctgc ttctgtatct agtgaagccg ttgtagaaag tactacagta 360
gctatcggca gtgcagatctt acagtgggtg caagatgtta ttgctagtac tgtagaatct 420
atgatgggtg ctgatgttaa cggtcagcaa ttaatcgagt tagttttaga tgctgaaggt 480
aatgttcctg acatcttttgc aggtgcgaat ttaacattag tacaaacagg aacagaccta 540
tctgtaaaat tctctaattt tgtagataat gctcagatgg cagaagcaat gagtctcatt 600
gtgaataacc cttctcagct tgctgggtta gtagaggcat taaaaaatcg tcatttgaat 660

ttgacagaat tggctgttgg atcaagtatt gtacaattgc caactattga agaggtgcaa 720
acacctctac atatgattgc tgctacaatt catcaaagag atgaagagag agatcaagaa 780
ggacaagatc agcagcaaca gcaagatcaa gaacaaaacc aatataaagt tgaagaagca 840
cgtttgtaa 849

<210> 118
<211> 282
<212> PRT
<213> Chlamydia psittaci

<400> 118

Met Glu Leu Asn Lys Thr Ser Glu Ser Leu Tyr Asn Cys Lys Thr Asp
1 5 10 15

Arg His Ser Val Gln Gln Glu Val Gly Pro Glu Pro Lys Asp Asn Arg
20 25 30

Asp Val Lys Val Phe Ser Leu Glu Gly Arg Gln Gln Ser Lys Gln Asp
35 40 45

Arg Gln Asp Lys Val Ser Ser Lys Asp Ser Arg Gln Glu Ser Arg Gly
50 55 60

Ala Asp Asp Lys His Val Glu Glu Lys Thr Ser Ala Val Ser Ser Lys
65 70 75 80

Glu Glu Asp Lys Glu Glu Ser Asp Gly Phe Met Ala Tyr Asp Asn Pro
85 90 95

Thr Ala Gly Met Ala Phe Val Asp Val Ala Ala Ser Val Ser Ser Glu
100 105 110

Ala Val Val Glu Ser Thr Thr Val Ala Ile Gly Ser Ala Asp Leu Gln
115 120 125

Trp Val Gln Asp Val Ile Ala Ser Thr Val Glu Ser Met Met Val Ala
130 135 140

Asp Val Asn Gly Gln Gln Leu Ile Glu Leu Val Leu Asp Ala Glu Gly
 145 150 155 160

Asn Val Pro Asp Ile Phe Ala Gly Ala Asn Leu Thr Leu Val Gln Thr
 165 170 175

Gly Thr Asp Leu Ser Val Lys Phe Ser Asn Phe Val Asp Asn Ala Gln
 180 185 190

Met Ala Glu Ala Met Ser Leu Ile Val Asn Asn Pro Ser Gln Leu Ala
 195 200 205

Gly Leu Val Glu Ala Leu Lys Asn Arg His Leu Asn Leu Thr Glu Leu
 210 215 220

Ala Val Gly Ser Ser Ile Val Gln Leu Pro Thr Ile Glu Glu Val Gln
 225 230 235 240

Thr Pro Leu His Met Ile Ala Ala Thr Ile His Gln Arg Asp Glu Glu
 245 250 255

Arg Asp Gln Glu Gly Gln Asp Gln Gln Gln Gln Asp Gln Glu Gln
 260 265 270

Asn Gln Tyr Lys Val Glu Glu Ala Arg Leu
 275 280

<210> 119
 <211> 261
 <212> DNA
 <213> Chlamydia psittaci

<400> 119
 atgagtagtg gtagcgggag cagttgctca gcatttaatt ttaatgacat gctcaatggc 60
 gtatgtaagt acgtccaagg tgtgcaacaa tatttaacag aattagaaac ctcaacgcaa 120
 ggtactgttg acttaggtac gatgtttaat ttgcagtttc gtatgcaaat tttatcacag 180
 tacatggaag cagtatccaa catcttgaca gcagtgaaca cagagatgat tactatggca 240
 agagctgtta aaggaagtta a 261

<210> 120
 <211> 86
 <212> PRT
 <213> Chlamydia psittaci

<400> 120

Met	Ser	Ser	Gly	Ser	Gly	Ser	Ser	Cys	Ser	Ala	Phe	Asn	Phe	Asn	Asp
1				5					10					15	

Met	Leu	Asn	Gly	Val	Cys	Lys	Tyr	Val	Gln	Gly	Val	Gln	Gln	Tyr	Leu
			20					25					30		

Thr	Glu	Leu	Glu	Thr	Ser	Thr	Gln	Gly	Thr	Val	Asp	Leu	Gly	Thr	Met
		35					40					45			

Phe	Asn	Leu	Gln	Phe	Arg	Met	Gln	Ile	Leu	Ser	Gln	Tyr	Met	Glu	Ala
	50					55					60				

Val	Ser	Asn	Ile	Leu	Thr	Ala	Val	Asn	Thr	Glu	Met	Ile	Thr	Met	Ala
65					70					75				80	

Arg	Ala	Val	Lys	Gly	Ser
				85	

<210> 121
 <211> 729
 <212> DNA
 <213> Chlamydia psittaci

<400> 121

atggaacctt atttagat	ttt atttagataaaa aacatcaaag	aaaaacatat gtttagatcat	60
cccttttata tgaagtgg	tc taagggagaa ttaacgaaag	agcagttaaa agaatacgct	120
aaggattact acctccac	at caaagctttt cctcgttatc	tttcagcagt tcatagccgc	180
tgtgataatt tagaagcg	cg taaattgctt cttgataacc	ttatggatga agaaacaggc	240
catcctaatac acataga	tct atggaaaaat tttgcctatg	cgttaggtgt tactgaggaa	300
gaattagaaa atcatgtt	cc tagtgcagca gcacaaaaga	aagtggatac atttttacgt	360
tggtgtactg gagattc	ctt atctgctggg gtagctgctt	tatataccta tgaaagccaa	420
atccctacag ttgcaga	gac taaaatctcg ggattaaaac	agtatttcgg ctttacggct	480

cctgaagatt atgagtactt cacagtacat caagatggtg atgtaagaca ttctcgtgaa 540
gaaaaagaat taatagagtc gttgctaaat aatgatagcg ataaggttct acaagcttca 600
aaagaagttt gtgatgcttt atacggcttt ttagatactt tcttagatga aaaagacgcc 660
tgctcagcaa cttcatcttc tgttgcggtat tctaaaccat cttcatgttg ttgtcgttgc 720
cgtcattaa 729

<210> 122
<211> 242
<212> PRT
<213> Chlamydia psittaci

<400> 122

Met Glu Pro Tyr Leu Asp Leu Leu Asp Lys Asn Ile Lys Glu Lys His
1 5 10 15

Met Leu Asp His Pro Phe Tyr Met Lys Trp Ser Lys Gly Glu Leu Thr
20 25 30

Lys Glu Gln Leu Lys Glu Tyr Ala Lys Asp Tyr Tyr Leu His Ile Lys
35 40 45

Ala Phe Pro Arg Tyr Leu Ser Ala Val His Ser Arg Cys Asp Asn Leu
50 55 60

Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp Glu Glu Thr Gly
65 70 75 80

His Pro Asn His Ile Asp Leu Trp Lys Asn Phe Ala Tyr Ala Leu Gly
85 90 95

Val Thr Glu Glu Glu Leu Glu Asn His Val Pro Ser Ala Ala Ala Gln
100 105 110

Lys Lys Val Asp Thr Phe Leu Arg Trp Cys Thr Gly Asp Ser Leu Ser
115 120 125

Ala Gly Val Ala Ala Leu Tyr Thr Tyr Glu Ser Gln Ile Pro Thr Val
130 135 140

Ala Glu Thr Lys Ile Ser Gly Leu Lys Gln Tyr Phe Gly Phe Thr Ala
 145 150 155 160

Pro Glu Asp Tyr Glu Tyr Phe Thr Val His Gln Asp Val Asp Val Arg
 165 170 175

His Ser Arg Glu Glu Lys Glu Leu Ile Glu Ser Leu Leu Asn Asn Asp
 180 185 190

Ser Asp Lys Val Leu Gln Ala Ser Lys Glu Val Cys Asp Ala Leu Tyr
 195 200 205

Gly Phe Leu Asp Thr Phe Leu Asp Glu Lys Asp Ala Cys Ser Ala Thr
 210 215 220

Ser Ser Ser Val Ala Asp Ser Lys Pro Ser Ser Cys Cys Cys Arg Cys
 225 230 235 240

Arg His

<210> 123
 <211> 234
 <212> DNA
 <213> Chlamydia psittaci

<400> 123
 atgaatgaag gtattcaaac cgtttctttt aacaagacac accgactcac cgcgaaatct 60
 acagttagtt tagaaatgcc cgtagcgaca cagaaacttc aaggtaaaga aggcatgccc 120
 gcagcggcaa gtttagaagc tgatttctta agagcagaag ctatacttgc agaaatgcgt 180
 gaaattcgcg gctgtttaga acattcattg gaaacgctag ttcctagaga ctag 234

<210> 124
 <211> 77
 <212> PRT
 <213> Chlamydia psittaci

<400> 124

Met Asn Glu Gly Ile Gln Thr Val Ser Phe Asn Lys Thr His Arg Leu

1	5	10	15												
Thr	Ala	Lys	Ser	Thr	Val	Ser	Leu	Glu	Met	Pro	Val	Ala	Thr	Gln	Lys
			20					25					30		
Leu	Gln	Gly	Lys	Glu	Gly	Met	Pro	Ala	Ala	Ala	Ser	Leu	Glu	Ala	Asp
		35					40					45			
Phe	Leu	Arg	Ala	Glu	Ala	Ile	Leu	Ala	Glu	Met	Arg	Glu	Ile	Arg	Gly
	50					55					60				
Cys	Leu	Glu	His	Ser	Leu	Glu	Thr	Leu	Val	Pro	Arg	Asp			
65					70					75					

<210> 125
 <211> 231
 <212> DNA
 <213> Chlamydia psittaci

<400> 125
 atgaaaaata aactacatga tttgttgaat cagctttatg aaaatcaaaa atctcgttta 60
 caaagcatgg gggagcagat cgtcccgaat ttaacttctg atgatgtatt acagcccatg 120
 gattttttcta tgctggaaga aaatcctttc tttcggtttg aggaaggtgt tctttctggt 180
 cttggagagg ctcgggcggc gattttggca ttatttgccg aagaaggtta a 231

<210> 126
 <211> 76
 <212> PRT
 <213> Chlamydia psittaci

<400> 126
 Met Lys Asn Lys Leu His Asp Leu Leu Asn Gln Leu Tyr Glu Asn Gln
 1 5 10 15
 Lys Ser Arg Leu Gln Ser Met Gly Glu Gln Ile Val Pro Asn Leu Thr
 20 25 30
 Ser Asp Asp Val Leu Gln Pro Met Asp Phe Ser Met Leu Glu Glu Asn
 35 40 45

Pro Phe Phe Arg Phe Glu Glu Gly Phe Phe Leu Val Leu Glu Arg Leu
50 55 60

Gly Arg Arg Phe Trp His Tyr Leu Pro Lys Lys Val
65 70 75

<210> 127
<211> 519
<212> DNA
<213> Chlamydia psittaci

<400> 127
atgtggttct cttctccagc acttcaaact agccctagag ccgctattga cgttcccggg 60
acatctatca caggtggacc aaatacagca acagccgatg aaattattgc aaaatttgcg 120
aaagattcca atcctctgat tatcaccgtg tactatgtat accagtctgt attggtagcg 180
caggacaact tatctattat cgctcaagaa cttcagtcta atgcttctgc ccagactttt 240
ttaaacaacc aagaagcttt ataccaatac gtaaccatac ctaagaacaa attaaacgat 300
aactcgtcgg cgttcttaca agatgttcaa tcaacaaacc aagctggttg agcttctcga 360
caagcactac aaaaccaaat ttcagggtta ggaaatgggtg ctcagggttat ctcaagtaac 420
ttgaacacga acaataacat tatccaacag tctctacaag taggccaggc gttaattcaa 480
acgttctcac aaattgtaag tttgatagca aacatttaa 519

<210> 128
<211> 172
<212> PRT
<213> Chlamydia psittaci

<400> 128

Met Trp Phe Ser Ser Pro Ala Leu Gln Thr Ser Pro Arg Ala Ala Ile
1 5 10 15

Asp Val Pro Gly Thr Ser Ile Thr Gly Gly Pro Asn Thr Ala Thr Ala
20 25 30

Asp Glu Ile Ile Ala Lys Phe Ala Lys Asp Ser Asn Pro Leu Ile Ile
35 40 45

Thr Val Tyr Tyr Val Tyr Gln Ser Val Leu Val Ala Gln Asp Asn Leu
50 55 60

Ser Ile Ile Ala Gln Glu Leu Gln Ser Asn Ala Ser Ala Gln Thr Phe
65 70 75 80

Leu Asn Asn Gln Glu Ala Leu Tyr Gln Tyr Val Thr Ile Pro Lys Asn
85 90 95

Lys Leu Asn Asp Asn Ser Ser Ala Phe Leu Gln Asp Val Gln Ser Thr
100 105 110

Asn Gln Ala Val Gly Ala Ser Arg Gln Ala Leu Gln Asn Gln Ile Ser
115 120 125

Gly Leu Gly Asn Gly Ala Gln Val Ile Ser Ser Asn Leu Asn Thr Asn
130 135 140

Asn Asn Ile Ile Gln Gln Ser Leu Gln Val Gly Gln Ala Leu Ile Gln
145 150 155 160

Thr Phe Ser Gln Ile Val Ser Leu Ile Ala Asn Ile
165 170

<210> 129
<211> 1443
<212> DNA
<213> Chlamydia psittaci

<400> 129
atgaacactc ccctgccttc agcagttccc tctaccaaca tgacgttaaa ggaagatgcc 60
tcctcttcat cctcagcatc aacatcttcc agtattttta agactgcagc aggagatggt 120
gcgctttccg tattcacttc cgaaggaacc acaccagctt ccttaaactc tctagttgct 180
cttgcccttg cgcaaatttc tgcagcttct ggagaaaatg ccaatccttt acaagattgt 240
gctcataatc ttgtcttcct ttctccagaa actattgaag ttgaaatact catctctgat 300
cttcttcaaa ctttagagac tacagatctt ataaacacac aggaagagtc ctcaagttta 360
ggaaaacaag aacagcgcct tcctcaagaa ggatgcaaac cacaggattt agcaccaaga 420

tctacaatag attcgtacgg cacaccgaaa gcattacaac aacctgccgt gaaactcgtc	480
gtccgctatt cttctgcaaa ggctcctgat tctcggcctt atacaagttc ctccctcaccg	540
cagcatactt cgggacaatt tgcccaacgt gctgcccagg cgccaggaat actgcaacac	600
tcccaaaciaa aaaaagatgg agagcaaatt tcttctcaat ctcaaatc ctttattgcg	660
gagaaaaaag aacagcagat tttcaccaca aagtctcaag aatctcagca ggatcgtgaa	720
aaccgagatc aaaaacaaga tcgccaacat gatggccaac atcaagatga tgatgatgat	780
cagcaaaaag gtagggggaa aaaatataaa tcaaagactt ctgccgaagc agttcctgct	840
gatctctccg tagcgcctct acgctatctt aatgaggtac gccaatctcg agaaattcat	900
gttgaggaag aaaaaacatt taagaagaaa gcgcaatctc cgatggcact tttttctgct	960
ccaactctc cagcaggatt taccccaatt cctactccaa agattgaaaa cgtattcata	1020
cgttttatga aacttatgga aaggattctg ggacaggccg aagccgaagc ccaagaatta	1080
tatcttcgcg ttaaagagcg taccgataat gtagacacat taatgctgct catttctaaa	1140
attaactctg aaaaagggtgc tattgactgg cgagatgatt cagaaatgaa agctctcgtg	1200
gatcaagcaa aaaaactggg tgtaacgata acagatactc tgcaatggtc tgaagaagag	1260
aaaaaacttc taaaagaaaa tattcagatg cgtaaagaaa acctggaaaa aatcacccag	1320
cttgaacgaa cagacatgca aaggcatctt caagaagtct cacaatgtca ccaagcacgc	1380
tccaacgcct tgaaacttct caaagaactc atggatacct ttattttacaa tttgcgtccg	1440
taa	1443

<210> 130
 <211> 480
 <212> PRT
 <213> Chlamydia psittaci

<400> 130

Met	Asn	Thr	Pro	Leu	Pro	Ser	Ala	Val	Pro	Ser	Thr	Asn	Met	Thr	Leu
1				5					10					15	

Lys	Glu	Asp	Ala	Ser	Ser	Ser	Ser	Ser	Ser	Ala	Ser	Thr	Ser	Ser	Ser	Ile
			20						25					30		

Leu	Lys	Thr	Ala	Ala	Gly	Asp	Val	Ala	Leu	Ser	Val	Phe	Thr	Ser	Glu
		35					40					45			
Gly	Thr	Thr	Pro	Ala	Ser	Leu	Asn	Ser	Leu	Val	Ala	Leu	Ala	Leu	Ala
	50					55					60				
Gln	Ile	Ser	Ala	Ala	Ser	Gly	Glu	Asn	Ala	Asn	Pro	Leu	Gln	Asp	Cys
65					70					75					80
Ala	His	Asn	Leu	Val	Phe	Leu	Ser	Pro	Glu	Thr	Ile	Glu	Val	Glu	Ile
				85					90					95	
Leu	Ile	Ser	Asp	Leu	Leu	Gln	Thr	Leu	Glu	Thr	Thr	Asp	Leu	Ile	Asn
			100					105					110		
Thr	Gln	Glu	Glu	Ser	Ser	Ser	Leu	Gly	Lys	Gln	Glu	Gln	Arg	Leu	Pro
		115					120					125			
Gln	Glu	Gly	Cys	Lys	Pro	Gln	Asp	Leu	Ala	Pro	Arg	Ser	Thr	Ile	Asp
	130					135					140				
Ser	Tyr	Gly	Thr	Pro	Lys	Ala	Leu	Gln	Gln	Pro	Ala	Val	Lys	Leu	Ala
145					150					155					160
Val	Arg	Tyr	Ser	Ser	Ala	Lys	Ala	Pro	Asp	Ser	Arg	Pro	Tyr	Thr	Ser
				165					170					175	
Ser	Ser	Ser	Pro	Gln	His	Thr	Ser	Gly	Gln	Phe	Ala	Gln	Arg	Ala	Ala
			180					185					190		
Gln	Ala	Pro	Gly	Ile	Leu	Gln	His	Ser	Gln	Thr	Lys	Lys	Asp	Gly	Glu
		195					200					205			
Gln	Ile	Ser	Ser	Gln	Ser	His	Asn	Ser	Phe	Ile	Ala	Glu	Lys	Lys	Glu
	210					215					220				
Gln	Gln	Ile	Phe	Thr	Thr	Lys	Ser	Gln	Glu	Ser	Gln	Gln	Asp	Arg	Glu
225					230					235					240

Asn	Arg	Asp	Gln	Lys	Gln	Asp	Arg	Gln	His	Asp	Gly	Gln	His	Gln	Asp	
				245					250					255		
Asp	Asp	Asp	Asp	Gln	Gln	Lys	Gly	Arg	Gly	Lys	Lys	Tyr	Lys	Ser	Lys	
			260					265					270			
Thr	Ser	Ala	Glu	Ala	Val	Pro	Ala	Asp	Leu	Ser	Val	Ala	His	Leu	Arg	
		275					280					285				
Tyr	Leu	Asn	Glu	Val	Arg	Gln	Ser	Arg	Glu	Ile	His	Val	Glu	Glu	Glu	
	290					295					300					
Lys	Thr	Phe	Lys	Lys	Lys	Ala	Gln	Ser	Pro	Met	Ala	Leu	Phe	Ser	Ala	
305					310					315					320	
Pro	Thr	Pro	Pro	Ala	Gly	Phe	Thr	Pro	Ile	Pro	Thr	Pro	Lys	Ile	Glu	
				325					330					335		
Asn	Val	Phe	Ile	Arg	Phe	Met	Lys	Leu	Met	Glu	Arg	Ile	Leu	Gly	Gln	
			340					345					350			
Ala	Glu	Ala	Glu	Ala	Gln	Glu	Leu	Tyr	Leu	Arg	Val	Lys	Glu	Arg	Thr	
		355					360					365				
Asp	Asn	Val	Asp	Thr	Leu	Met	Leu	Leu	Ile	Ser	Lys	Ile	Asn	Ser	Glu	
	370					375					380					
Lys	Gly	Ala	Ile	Asp	Trp	Arg	Asp	Asp	Ser	Glu	Met	Lys	Ala	Leu	Val	
385					390					395					400	
Asp	Gln	Ala	Lys	Lys	Leu	Gly	Val	Thr	Ile	Thr	Asp	Thr	Leu	Gln	Trp	
			405						410					415		
Ser	Glu	Glu	Glu	Lys	Lys	Leu	Leu	Lys	Glu	Asn	Ile	Gln	Met	Arg	Lys	
			420					425					430			
Glu	Asn	Leu	Glu	Lys	Ile	Thr	Gln	Leu	Glu	Arg	Thr	Asp	Met	Gln	Arg	
		435					440					445				

His Leu Gln Glu Val Ser Gln Cys His Gln Ala Arg Ser Asn Ala Leu
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Lys Leu Leu Lys Glu Leu Met Asp Thr Phe Ile Tyr Asn Leu Arg Pro
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 atccctgaag atcctgccgg aattgctatt catgatcgtg tgttatttaa aatcgatgaa 180
 gataacgttg ttacgacttt agatgttata cagaagctta accttctttt tgcttcttca 240
 taccctcagc ttatggattc ttatcctgcg cgttcgcaat actatacagc catgtggcca 300
 gtagtttttag aatctgtaat agacgagttt cttatggttg ccgatgctaa gactaaaaaa 360
 atccaggtgg actctactac agtgaatgaa gaaattgaag caatgtttgg tagagatcta 420
 tctcctttgt atgtacattt tgacatgacc cccgaagatg ttttcaacgt ggtaaatacgt 480
 accctaattg ctcagagagt catgggtatg atggtgcgct ctaaggtaat gttgaaagtt 540
 accccagggga aaattcgcgga acattataat cagctggctg aagatgcagc aaacactact 600
 gtatggaaat acagagttgt tacgattaaa gcagctacag agtcattatc gagccaaatt 660
 gccgataaag tctgcgctag gttaaataa gacgcaaagct ggaataaaga gcgttttatct 720
 gctcttactc tttctcaagg agggcagttt gtctgttctg aagagtttac acgcaatgat 780
 aaagaattat cagaagctca taaaatggaa ttgtcctcgg taaactaccc acaaactatt 840
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 gcaatggcaa tgcagcccct agaagaaatg gaaacgcaga taaagcagac gctattttatg 960
 aattatgctg ggactataga aagtcagtat aaaatgaaat tgcgtacacg ctatggattt 1020
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<210> 132
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<400> 132

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Ser Val Gly Val Leu Pro Gly Asn Glu Ser Ser Leu Pro Val Gln Arg
 20 25 30

Glu Tyr Pro Ser Arg Thr Glu Arg Ile Pro Glu Asp Pro Ala Gly Ile
 35 40 45

Ala Ile His Asp Arg Val Leu Phe Lys Ile Asp Glu Asp Asn Val Val
 50 55 60

Thr Thr Leu Asp Val Ile Gln Lys Leu Asn Leu Leu Phe Ala Ser Ser
 65 70 75 80

Tyr Pro Gln Leu Met Asp Ser Tyr Pro Ala Arg Ser Gln Tyr Tyr Thr
 85 90 95

Ala Met Trp Pro Val Val Leu Glu Ser Val Ile Asp Glu Phe Leu Met
 100 105 110

Val Ala Asp Ala Lys Thr Lys Lys Ile Gln Val Asp Ser Thr Thr Val
 115 120 125

Asn Glu Glu Ile Glu Ala Met Phe Gly Arg Asp Leu Ser Pro Leu Tyr
 130 135 140

Val His Phe Asp Met Thr Pro Glu Asp Val Phe Asn Val Val Asn Arg
 145 150 155 160

Thr Leu Ile Ala Gln Arg Val Met Gly Met Met Val Arg Ser Lys Val
 165 170 175

Met Leu Lys Val Thr Pro Gly Lys Ile Arg Glu His Tyr Asn Gln Leu

180					185					190					
Ala	Glu	Asp	Ala	Ala	Asn	Thr	Thr	Val	Trp	Lys	Tyr	Arg	Val	Val	Thr
		195					200					205			
Ile	Lys	Ala	Ala	Thr	Glu	Ser	Leu	Ser	Ser	Gln	Ile	Ala	Asp	Lys	Val
	210					215					220				
Cys	Ala	Arg	Leu	Asn	Glu	Thr	Gln	Ser	Trp	Asn	Lys	Glu	Arg	Leu	Ser
225					230					235					240
Ala	Leu	Thr	Leu	Ser	Gln	Gly	Gly	Gln	Phe	Val	Cys	Ser	Glu	Glu	Phe
				245					250					255	
Thr	Arg	Asn	Asp	Lys	Glu	Leu	Ser	Glu	Ala	His	Lys	Met	Glu	Leu	Ser
			260					265					270		
Ser	Val	Asn	Tyr	Pro	Gln	Thr	Ile	Cys	Ser	Leu	Pro	Lys	Ala	His	Lys
		275					280					285			
Ser	Gly	His	Lys	Leu	Tyr	Val	Leu	Leu	Asp	Lys	Ser	Ala	Met	Ala	Met
	290					295					300				
Gln	Pro	Leu	Glu	Glu	Met	Glu	Thr	Gln	Ile	Lys	Gln	Thr	Leu	Phe	Met
305					310					315					320
Asn	Tyr	Ala	Gly	Thr	Ile	Glu	Ser	Gln	Tyr	Lys	Met	Lys	Leu	Arg	Thr
				325					330					335	
Arg	Tyr	Gly	Phe	Asp	Ser	Ser	Thr	Ile	Ala	Lys	Leu	Leu	Ser	Glu	Glu
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<210> 142

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